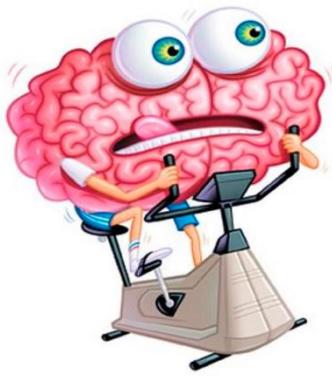
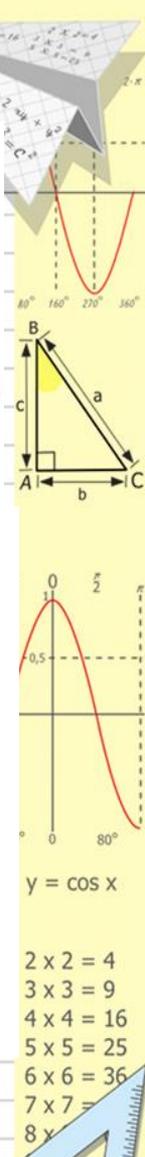
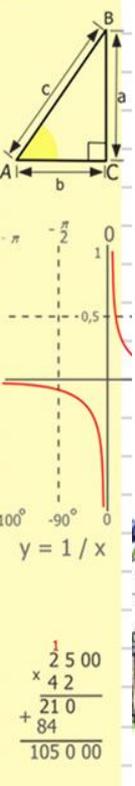
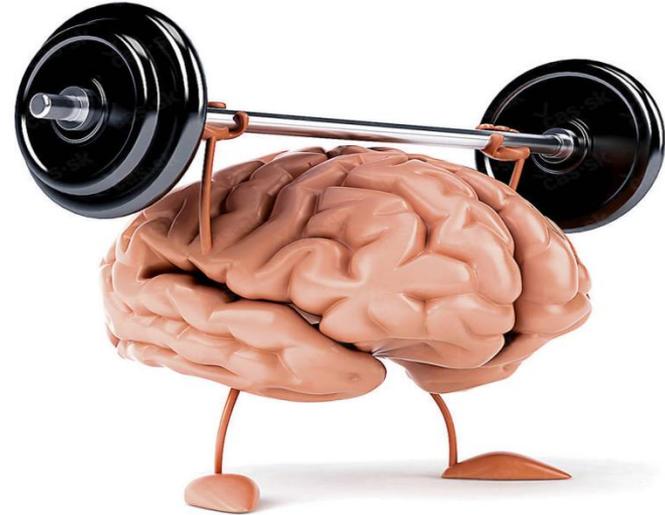
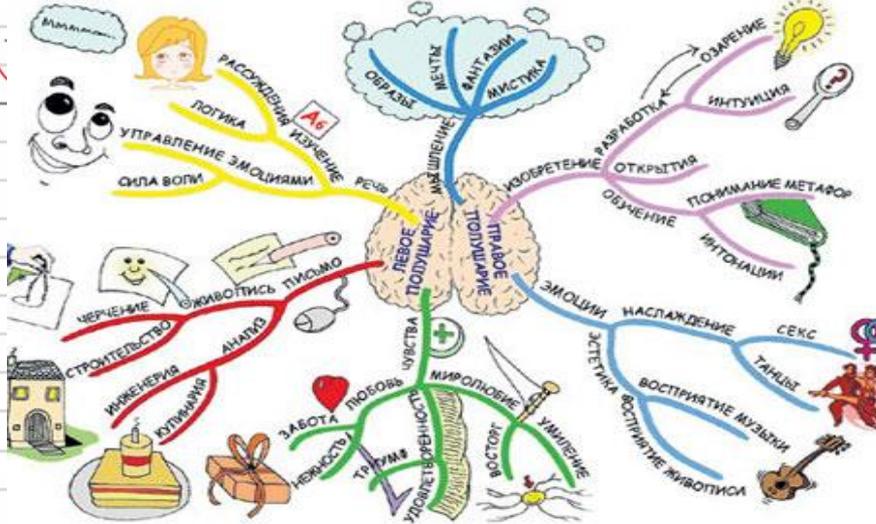


Математика

Мозговой штурм



ЗА ЧТО ОТВЕЧАЮТ ПОЛУШАРИЯ МОЗГА

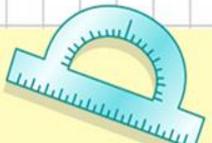


$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

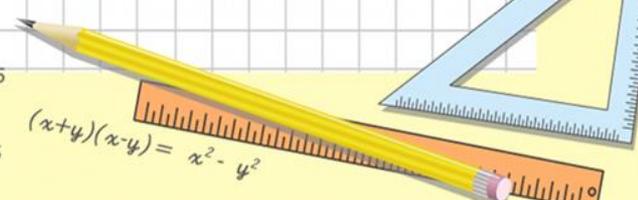


$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

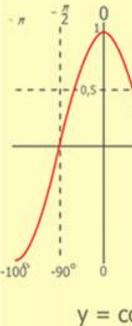
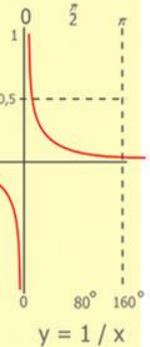
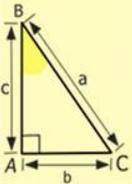
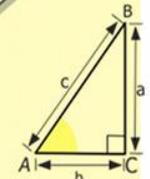
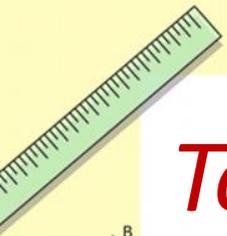
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ x = 70 \end{cases}$$



$$(x+y)(x-y) = x^2 - y^2$$

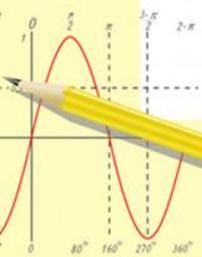
*Тот, кто не знает математики,
не может узнать никакой
другой науки,
и даже не может обнаружить
своего невежества.*

Роджер Бэкон



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 8400 \\ \hline 105000 \end{array}$$

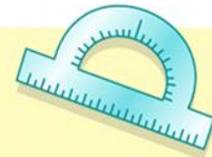
- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
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$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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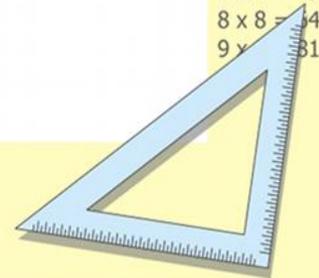
$$\sin 90^\circ = 1$$

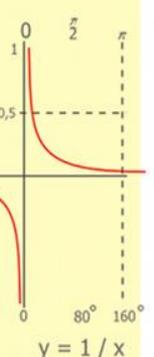
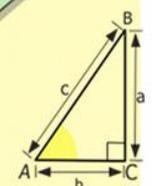
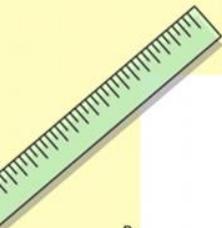


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

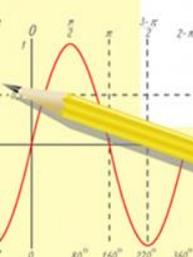
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$

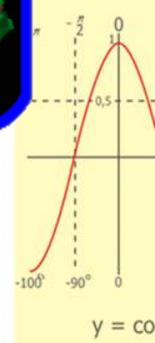




$$\begin{array}{r} 1\ 2\ 5\ 00 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105\ 000 \end{array}$$



*Математика – наука,
 Без неё нам не прожить.
 Когда не можешь – это мука!
 Когда не хочешь – это скука!
 Спешите все!
 Мы всех научим
 Мозгами быстро шевелить!*

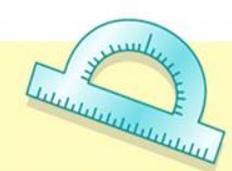


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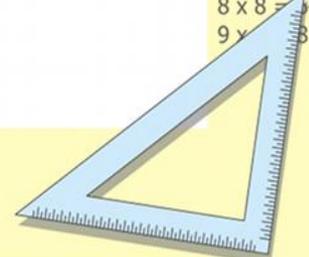
$$\sin 90^\circ = 1$$



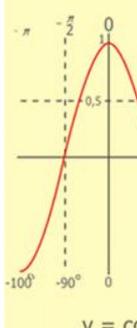
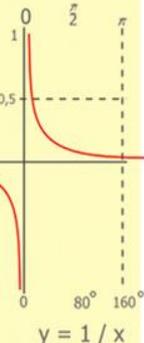
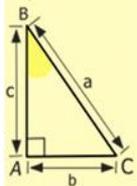
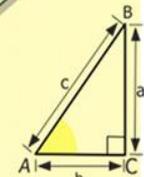
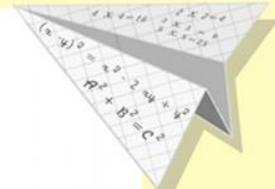
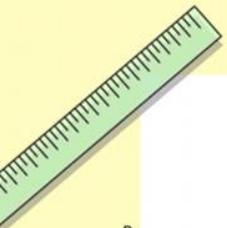
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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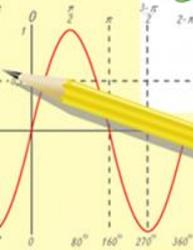


I. Давайте познакомимся! (представление команд)



$$\begin{array}{r} 12500 \\ \times 42 \\ \hline 2100 \\ + 8400 \\ \hline 105000 \end{array}$$

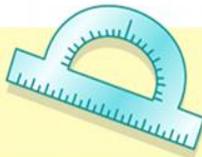
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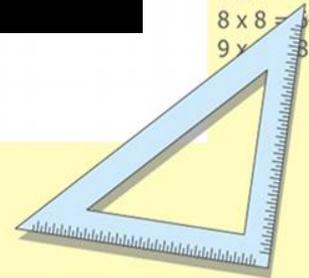
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

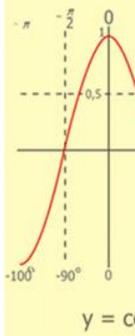
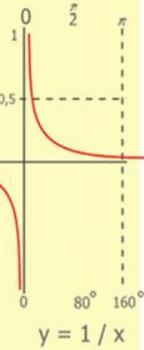
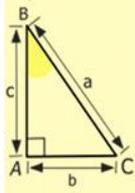
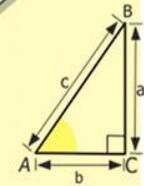
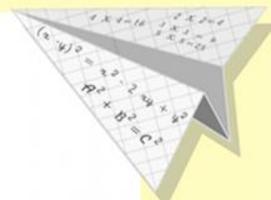
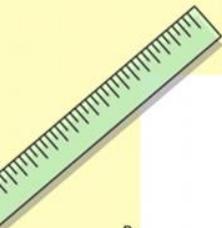
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



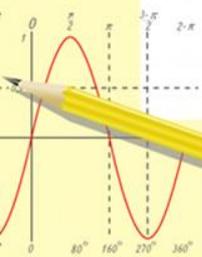
II. Разминка

Вопросы с нечётным номером – 1- ой команде, с чётным – 2- ой команде. За каждый правильный ответ – 1 балл. Если команда отвечает неверно или не знает ответ, то право ответа переходит 2- ой команде .



$$\begin{array}{r} 1 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

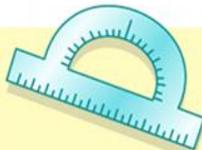
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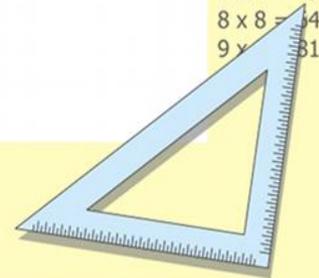
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



1. Назовите 5 дней недели, не называя ни числа, ни названия этих дней.

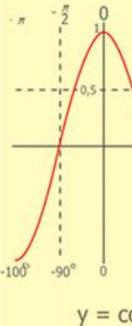
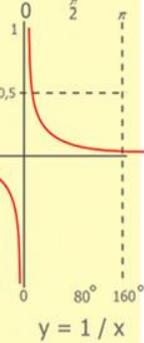
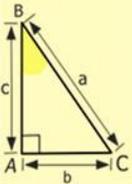
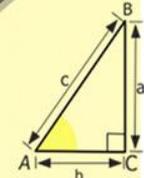
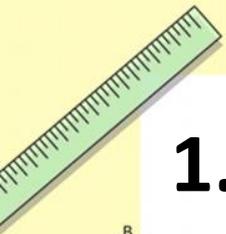
Ответ: Позавчера, вчера, сегодня, завтра, послезавтра.

2. Тройка лошадей пробежала 30 км. Сколько километров пробежала каждая лошадь?

Ответ: 30 км

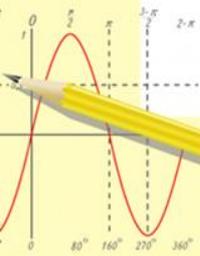
3. Сколько концов у 3,5 палок?

Ответ: 8



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 840 \\ \hline 105000 \end{array}$$

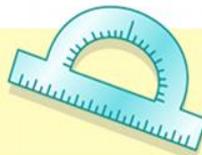
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

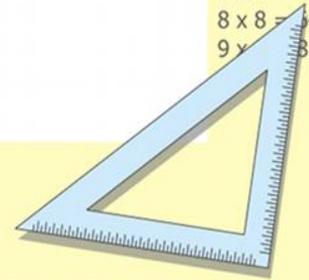


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



4. Бревно пилят на 10 частей. Сколько надо сделать распилов?

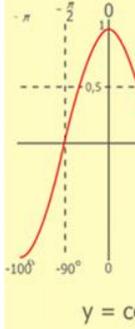
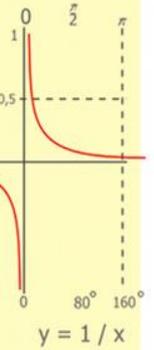
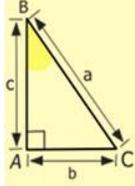
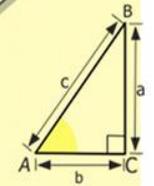
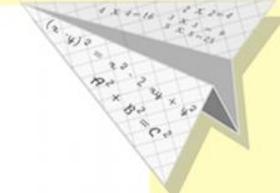
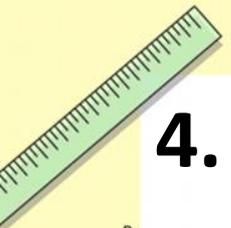
Ответ: 9

5. Сколько земли в дыре глубиной 2 м, длиной 2 м и шириной 2 м?

Ответ: Нисколько.

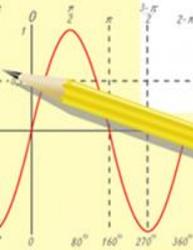
6. Трёхзначное число, увеличив себя наполовину, посмотрело на себя в зеркало и увидело там себя вверх ногами. Какое это число?

Ответ: 666



$$\begin{array}{r} \frac{1}{2} 500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
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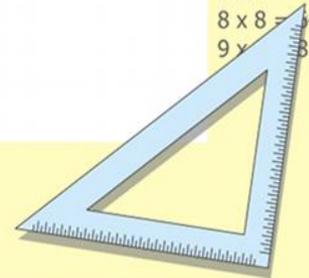
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



7. Две дочери, две матери, да бабушка с внучкой. Сколько всех?

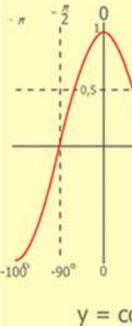
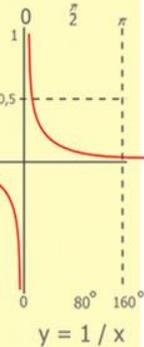
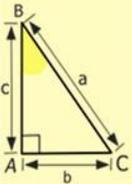
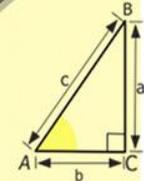
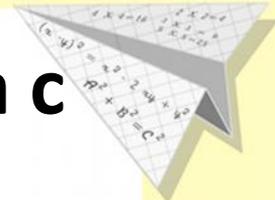
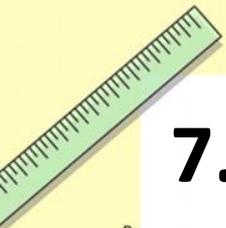
Ответ: 3

8. На елке горело 7 свечей, 5 из них погасли. Сколько свечей осталось?

Ответ: 7.

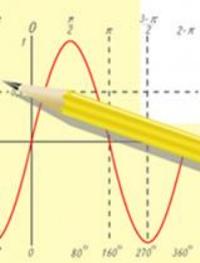
9. Мальчик лёг спать в 7 часов вечера, поставив будильник так, чтобы он прозвенел в 9 часов утра. Сколько времени проспит мальчик?

Ответ: 2



$$\begin{array}{r} 1 \\ \times 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

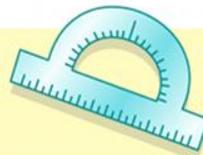
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$$\sin 90^\circ = 1$$

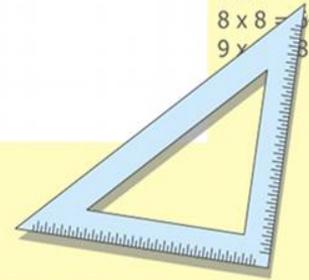


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



10. Три плюс три умножить на три.
Сколько будет?

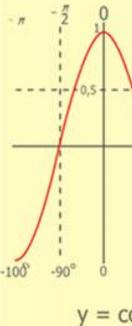
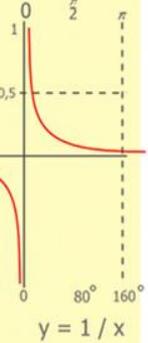
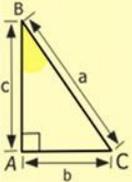
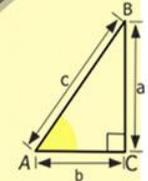
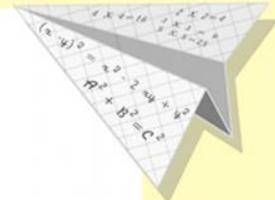
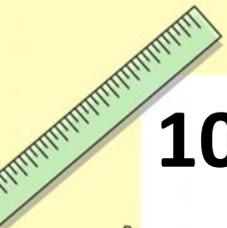
Ответ: 12

11. 7 человек обменялись фотографиями,
сколько было роздано фотографий?

Ответ: 42.

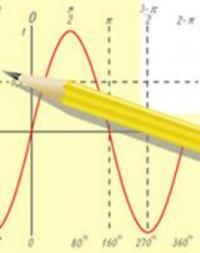
12. Три курицы за три дня снесут три яйца.
Сколько яиц снесут двенадцать кур за
двенадцать дней?

Ответ: 48



$$\begin{array}{r} 1 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

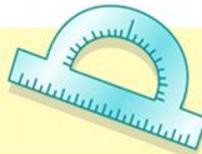
- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

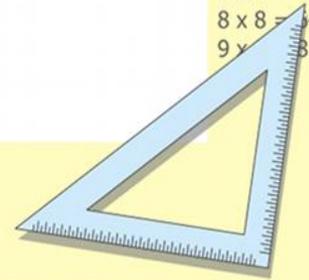
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

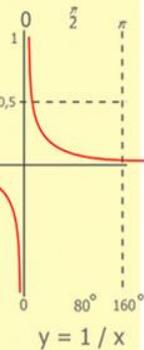
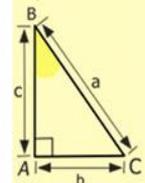
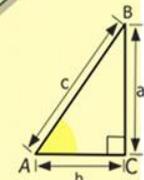
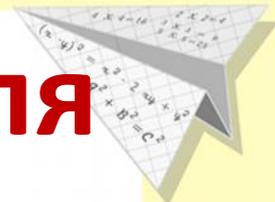
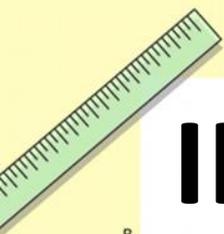
$$(x+y)(x-y) = x^2 - y^2$$



III. «Серьёзные» задачи для «серьёзных» людей

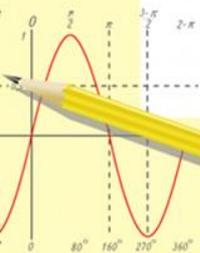
Каждому члену команды по олимпиадной задаче.

Каждая правильно решённая задача команде приносит 1 балл.



$$\begin{array}{r} 1\ 2\ 5\ 00 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105\ 000 \end{array}$$

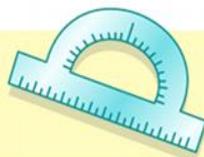
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

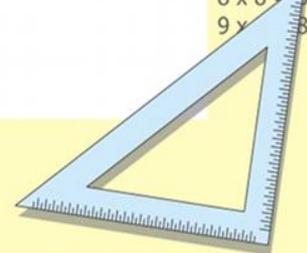
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



1 команда

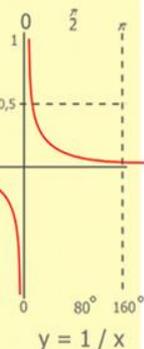
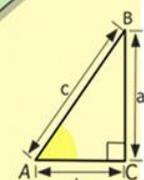
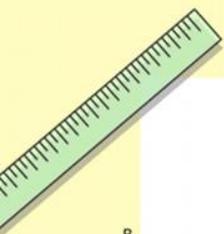
Двум братьям вместе 35 лет. Сколько лет каждому, если половина лет одного равна трети лет другого?

Ответ: 14 лет и 21 год.

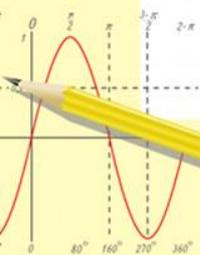
2 команда

Число 56 разложите на два слагаемых так, чтобы треть первого слагаемого была равна четверти второго.

Ответ: 24 и 32.



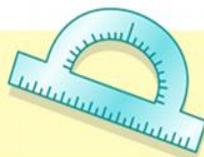
$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 8400 \\ \hline 105000 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

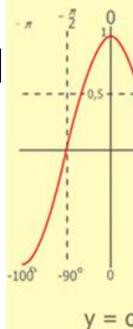
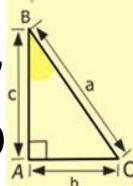
$$\sin 90^\circ = 1$$



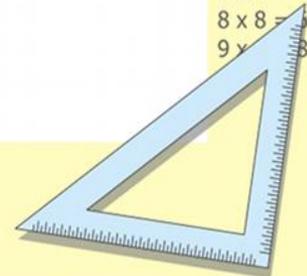
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



1 команда

Решение:

Пусть x (лет) - первому,
тогда $(35-x)$ (лет) –
второму брату.

Уравнение:

$$\frac{x}{2} = \frac{35 - x}{3}$$

Ответ: 14 лет и 21 год.

2 команда

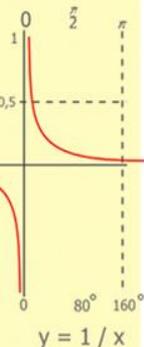
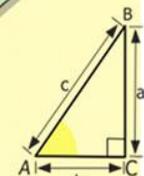
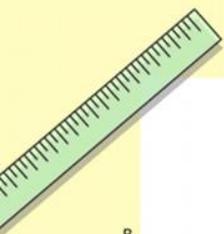
Решение:

Пусть x – первое
слагаемое, тогда $(56-x)$
– второе слагаемое.

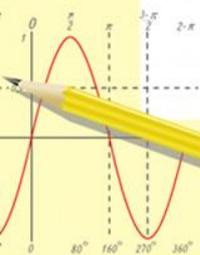
Уравнение:

$$\frac{x}{3} = \frac{56 - x}{4}$$

Ответ: 24 и 32.



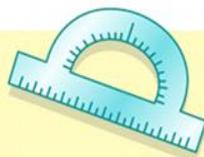
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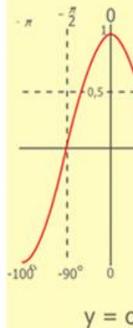
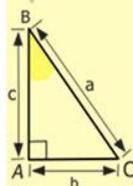
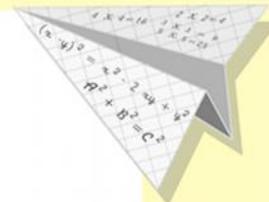
$$\sin 90^\circ = 1$$



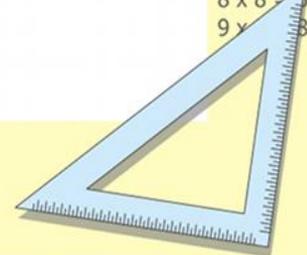
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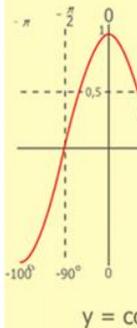
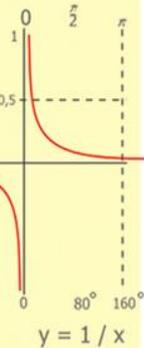
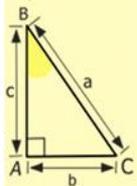
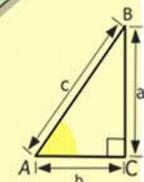
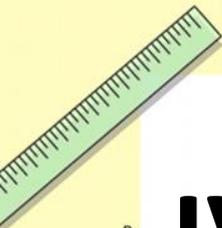


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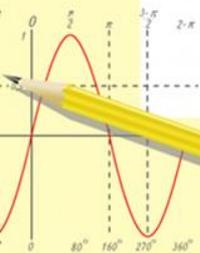
IV. Математические загадки

С нечётным номером – 1- ой команде, с чётным – 2- ой команде. За каждый правильный ответ – 1 балл. Если команда отвечает неверно или не знает ответ, то право ответа переходит 2- ой команде.



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 2100 \\ + 840 \\ \hline 105000 \end{array}$$

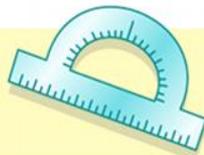
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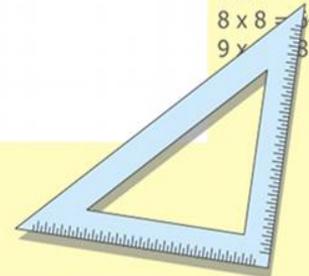
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



1. Семь братьев: годами равные,
именами разные.

Ответ: Дни недели.

2. Пять чуланов, одна дверь.

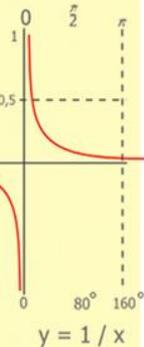
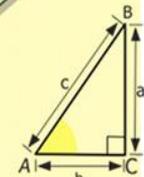
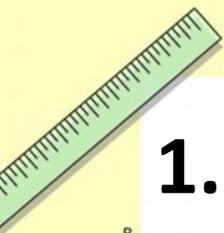
Ответ: Перчатка.

3. Один говорит, два глядят, два слушают.

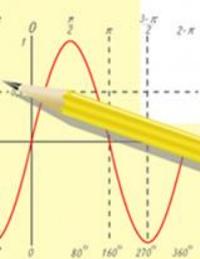
Ответ: Рот, глаза, уши

4. У двух матерей по пяти сыновей, все на
одно имя.

Ответ: Пальцы.



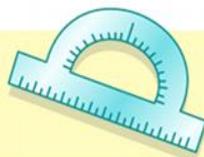
$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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$$\sin 90^\circ = 1$$

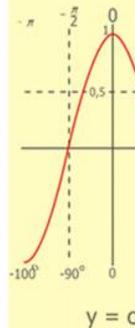
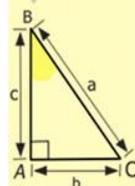
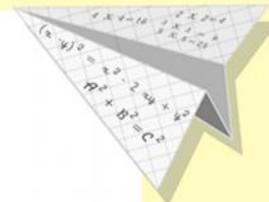


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

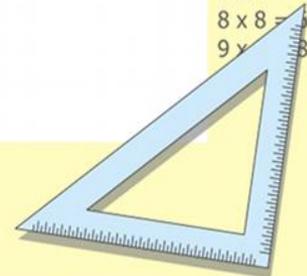
$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



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5. Два брюшка, четыре ушка.

Ответ: Подушка.

6. Два близнеца, два братца на нас
верхом садятся.

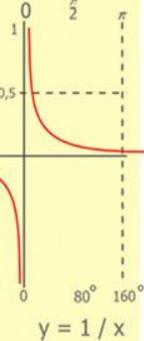
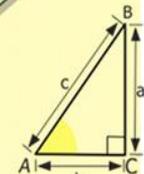
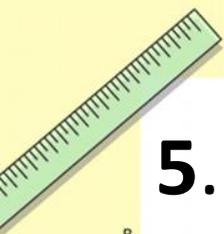
Ответ: Очки и нос.

7. Много рук, нога - одна.

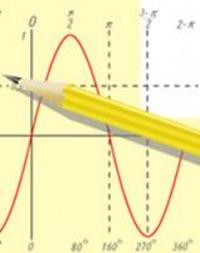
Ответ: Дерево

8. Золотист он и усат. В ста карманах – 100
ребят.

Ответ: Колос.



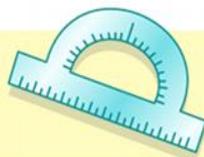
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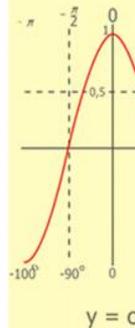
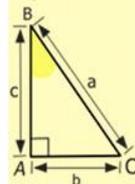
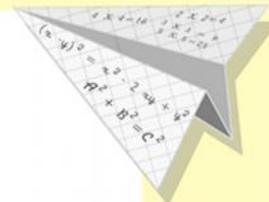
$$\sin 90^\circ = 1$$



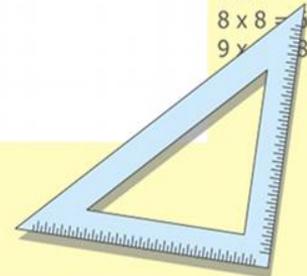
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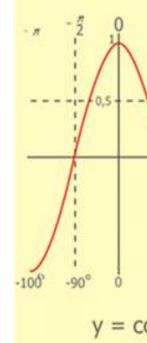
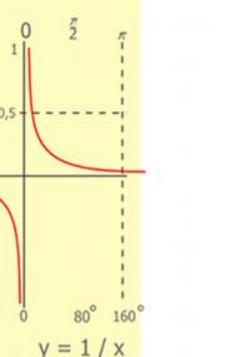
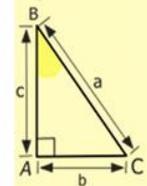
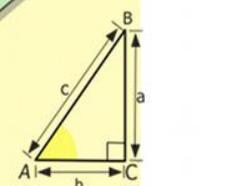
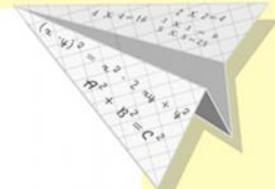
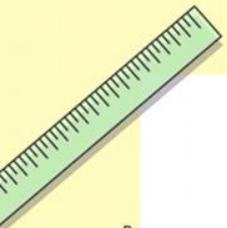


$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



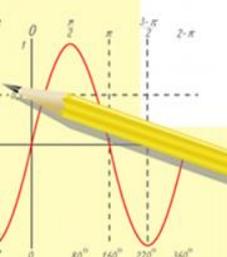
V. Командный штурм.

Каждая команда должна быстро и правильно ответить на 20 вопросов.



$$\begin{array}{r} \frac{1}{2} 500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

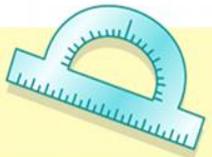
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

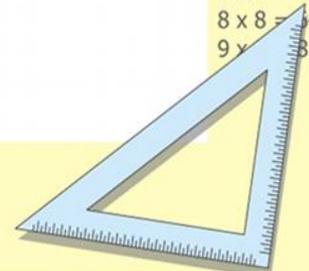
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



Вопросы для 1 команды:

1. Какой буквой латинского алфавита обозначается группа, куда входит сборная России на ЧМ – 2014 по футболу?

Ответ: Группа Н.

2. Уравнение второй степени.

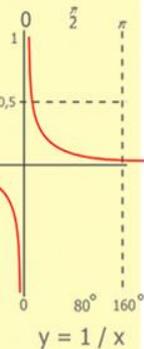
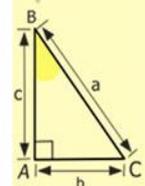
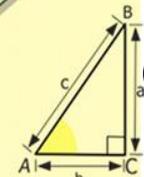
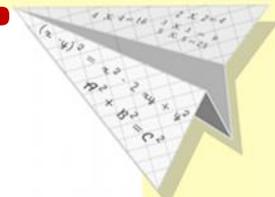
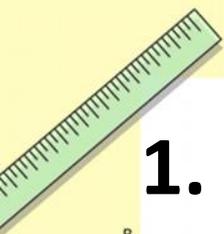
Ответ: Квадратное.

3. Город, состоящий из 101 имени.

Ответ: Севастополь

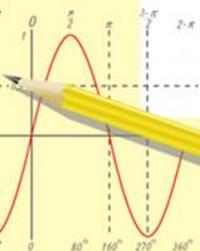
4. Геометрия, в которой изучаются фигуры на плоскости.

Ответ: Планиметрия.



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 8400 \\ \hline 105000 \end{array}$$

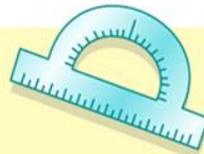
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

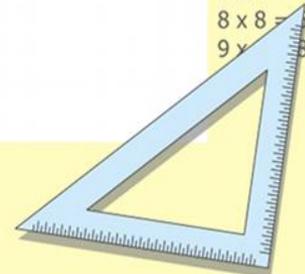


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



5. Сумма одночленов.

Ответ: Многочлен.

6. Сколько лет сидел Илья – Муромец?

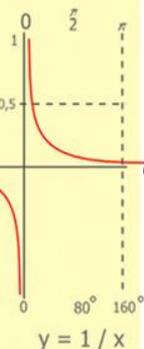
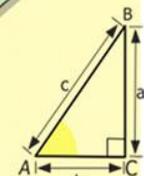
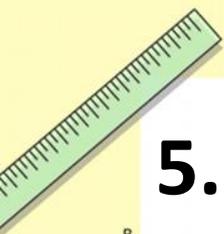
Ответ: 33 года.

7. Наименьшее чётное число.

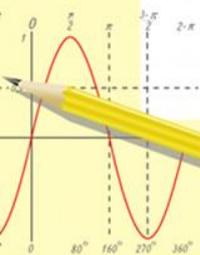
Ответ: 2.

8. Сумма углов треугольника.

Ответ: 180 градусов.



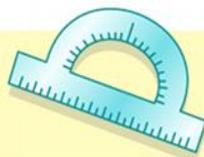
$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 8400 \\ \hline 105000 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

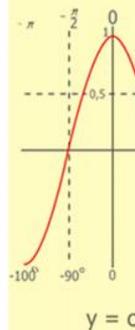
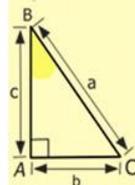
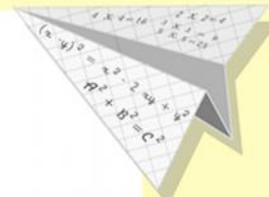


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

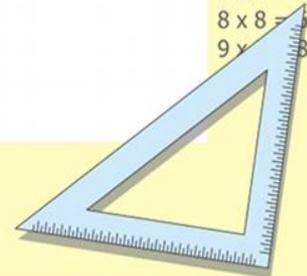
$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

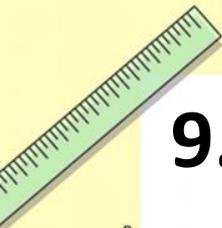
$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$





9. Геометрическая фигура в любовных делах.

Ответ: Треугольник.

10. Какой вал изображён на картине Айвазовского.

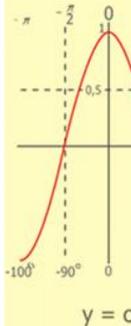
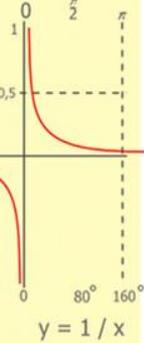
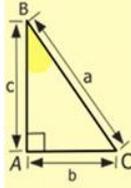
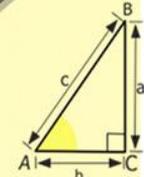
Ответ: 9.

11. Что является графиком функции $y=kx$?

Ответ: Прямая.

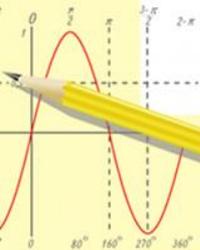
12. Треугольник, у которого есть прямой угол.

Ответ: Прямоугольный.



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 840 \\ \hline 10500 \end{array}$$

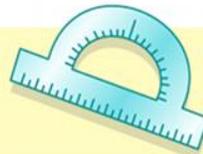
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

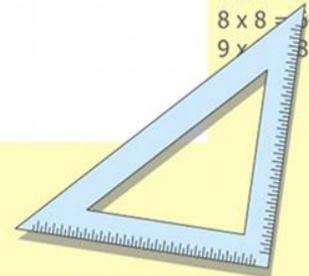


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



13. Дробь, у которой числитель меньше знаменателя.

Ответ: Правильная.

14. Масса кубического метра воды.

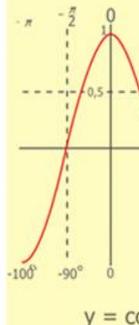
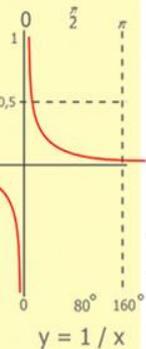
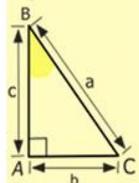
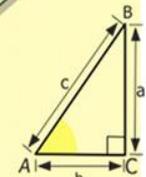
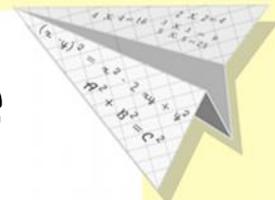
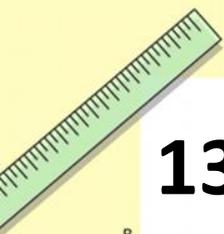
Ответ: Тонна.

15. Отрезок, соединяющий точку окружности с её центром.

Ответ: Радиус.

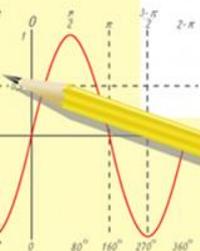
16. Соперник нолика.

Ответ: Крестик.



$$\begin{array}{r} 1\ 2\ 5\ 00 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105\ 000 \end{array}$$

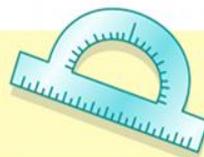
- 2 x 2 = 4
- 3 x 3 = 9
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$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

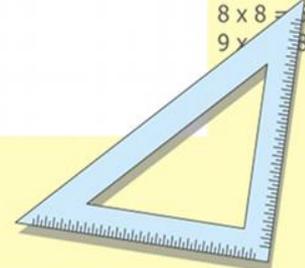
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$
$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$
$$\frac{x}{70}$$

$$(x+y)(x-y) = x^2 - y^2$$



17. Фигура, состоящая из точек и последовательно соединяющих их отрезков .

Ответ: Ломаная.

18. Сколько дней в летних каникулах?

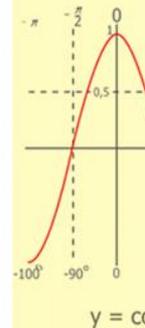
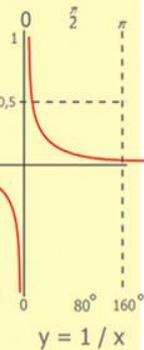
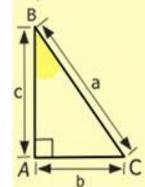
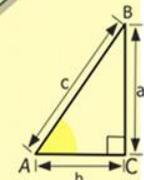
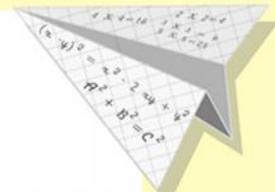
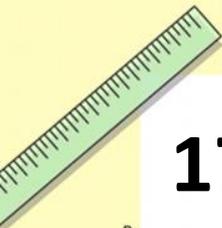
Ответ: 92.

19. Место, занимаемое цифрой в записи числа.

Ответ: Разряд.

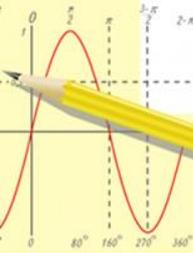
20. Утверждение, которое не доказывается.

Ответ: Аксиома.



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 8400 \\ \hline 105000 \end{array}$$

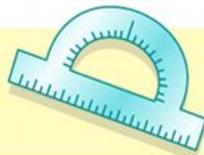
- 2 x 2 = 4
- 3 x 3 = 9
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$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

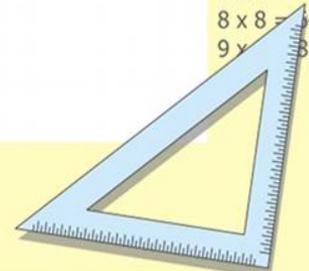
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



Вопросы для 2 команды:

1. Какого числа был первый матч сборной России по футболу в ЧМ-2014?

Ответ: 18 июня

2. Простейшая линия в геометрии.

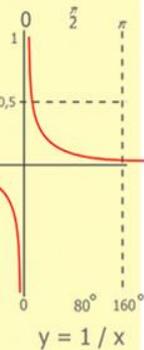
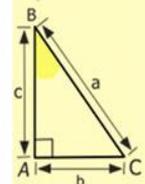
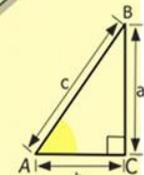
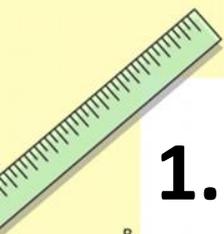
Ответ: Прямая.

3. Сколько козлят было у многодетной козы?

Ответ: 7.

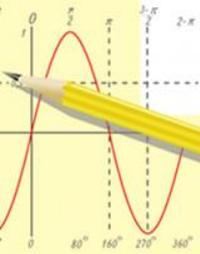
4. Наука о свойствах геометрических тел.

Ответ: Геометрия.



$$\begin{array}{r} 1\ 5\ 00 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105\ 000 \end{array}$$

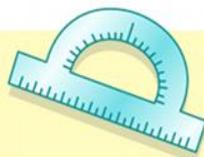
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

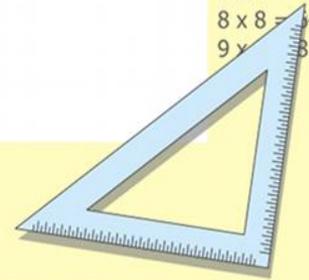


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



5. Равенство с переменной.

Ответ: Уравнение.

6. Сколько музыкантов в квартете?

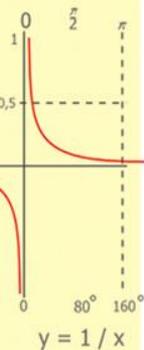
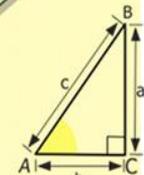
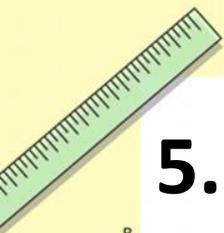
Ответ: 4.

7. Наименьшее натуральное число.

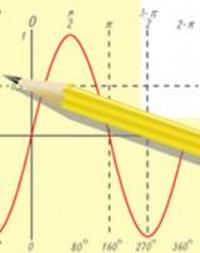
Ответ: 1.

8. Сотая часть числа.

Ответ: Процент.



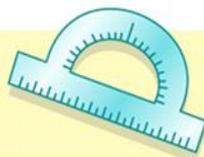
$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

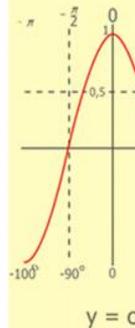
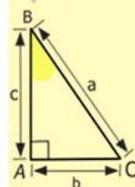
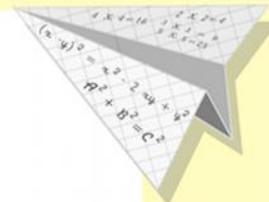


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

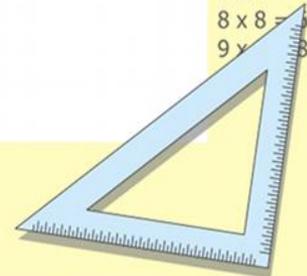
$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



9. Треугольный платок.

Ответ: Косынка.

10. Сколько пьес во «Временах года» Чайковского?

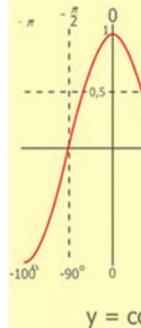
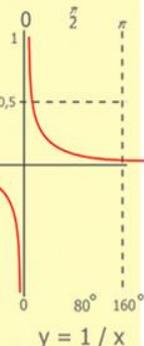
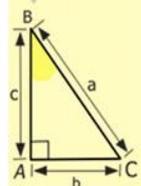
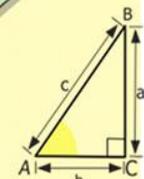
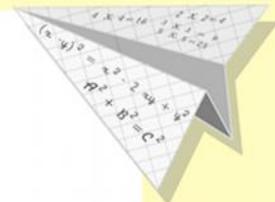
Ответ: 12.

11. Что является графиком функции $y=kx+b$?

Ответ: Прямая.

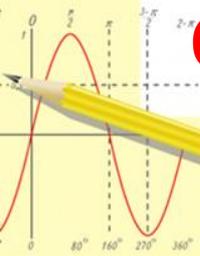
12. Треугольник, у которого все стороны равны .

Ответ: Равносторонний.



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 840 \\ \hline 10500 \end{array}$$

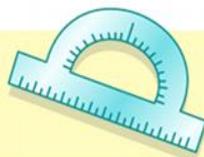
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

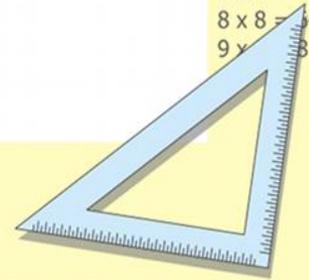


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



13. Уравнения, имеющие одни и те же корни.

Ответ: Равносильные.

14. Объём килограмма воды.

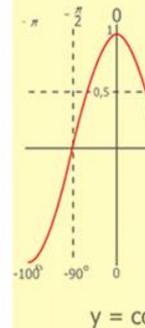
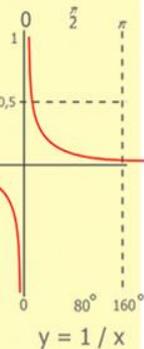
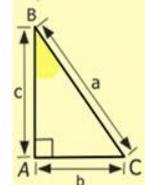
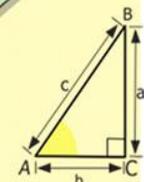
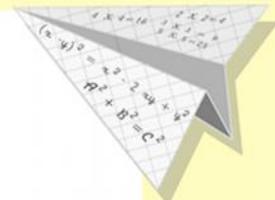
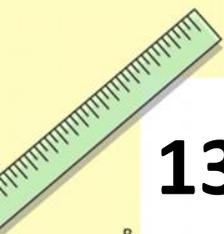
Ответ: Литр.

15. Часть прямой.

Ответ: Полупрямая, луч.

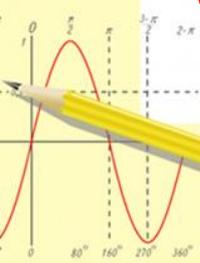
16. Сумма всех сторон n-угольника.

Ответ: Периметр.



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

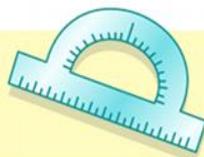
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

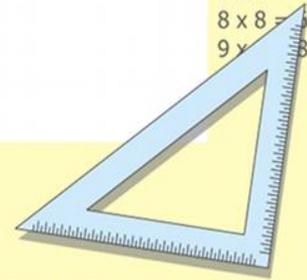


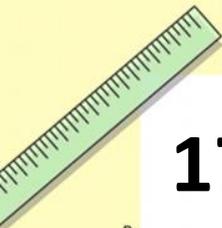
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$





17. Замкнутая ломаная, звенья которой не лежат на одной линии.

Ответ: Многоугольник.

18. Сколько раз в году восходит солнце?

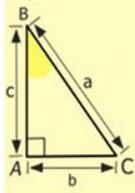
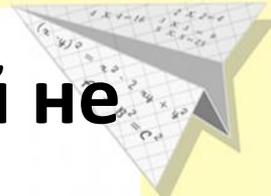
Ответ: 365.

19. Когда начался XXI век?

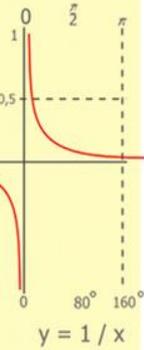
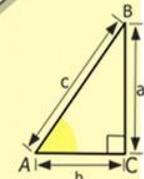
Ответ: 1 января 2001 года.

20. Треугольник со сторонами 3, 4 и 5.

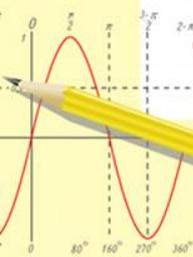
Ответ: Египетский.



- $y = \cos$
- $2 \times 2 = 4$
 - $3 \times 3 = 9$
 - $4 \times 4 = 16$
 - $5 \times 5 = 25$
 - $6 \times 6 = 36$
 - $7 \times 7 = 49$
 - $8 \times 8 = 64$
 - $9 \times 9 = 81$



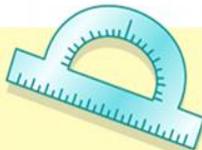
$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 840 \\ \hline 105000 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

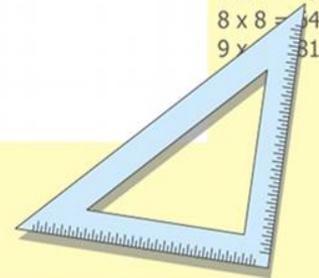


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

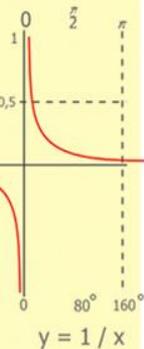
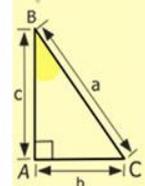
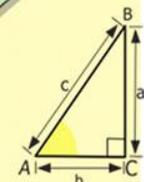
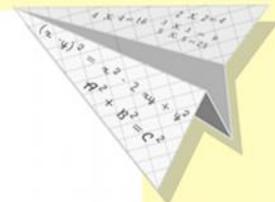
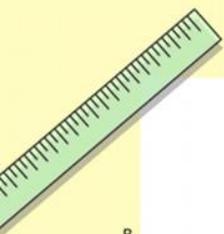
$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



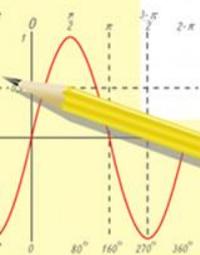
VI. Фитнес - пауза

1. Постройтесь в порядке убывания слева направо по количеству букв своего полного имени.



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

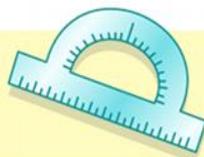
- $2 \times 2 = 4$
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- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
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$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

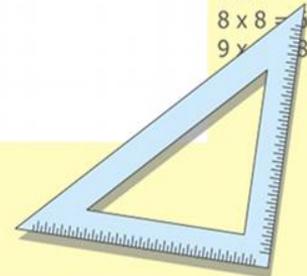
$$\sin 90^\circ = 1$$



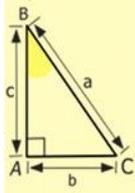
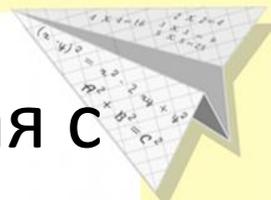
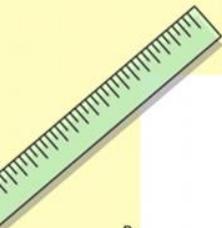
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$

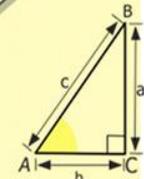


2. Постройтесь по длине волос, начиная с самых коротких.

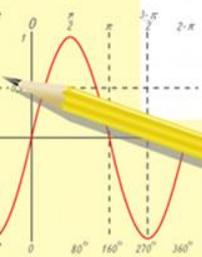


$y = \cos$

- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
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- $9 \times 9 = 81$



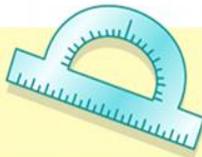
$$\begin{array}{r} 12500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

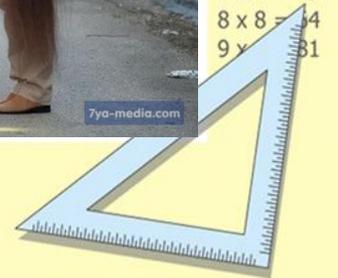
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$\sin 90^\circ = 1$



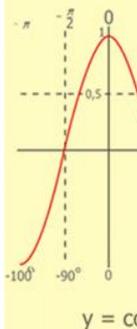
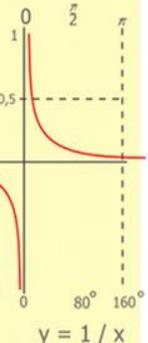
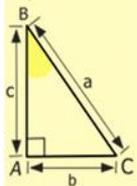
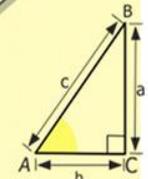
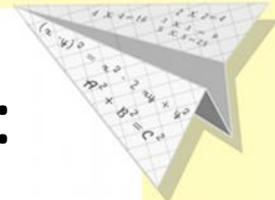
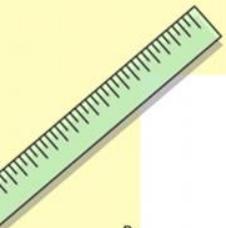
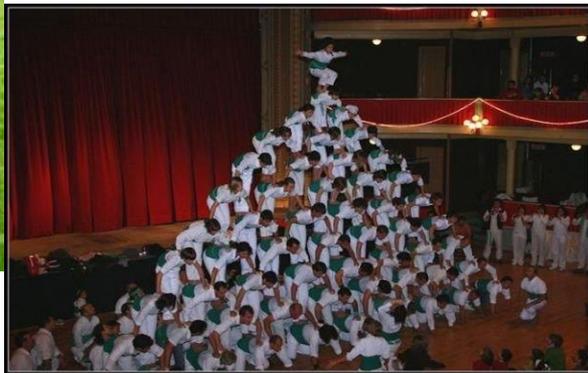
$$\begin{cases} x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



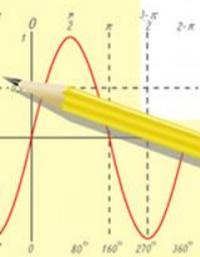
3. Изобразите геометрические фигуры:

- а) окружность;
- б) треугольник;
- в) прямоугольник.



$$\begin{array}{r} 1 \\ \times 2500 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

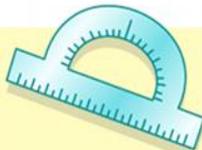
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



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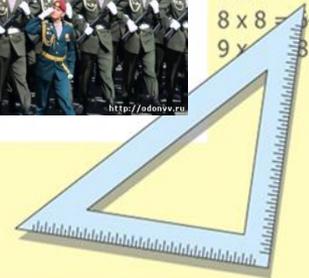
$$\sin 90^\circ = 1$$



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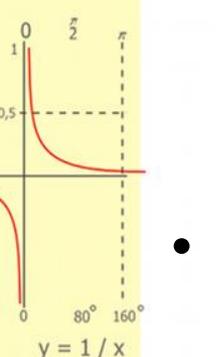
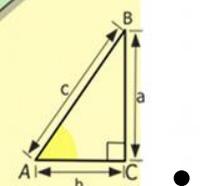
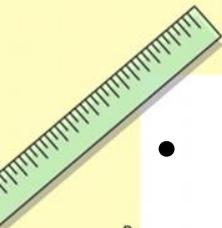
VII. Великие математики

- Стены детской были оклеены лекциями профессора Остроградского об интегралах;
- Наиболее важные исследования относятся к теории вращения твёрдого тела
- В 1889 году - премия Парижской академии за исследование о вращении тяжёлого несимметричного волчка.
- **«Принцесса науки»** - так называли её в Стокгольме.

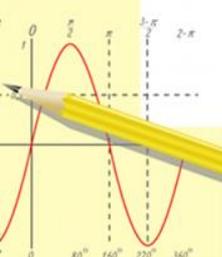


ОТВЕТ:

**Софья
Васильевна
Ковалевская
(1850 – 1891)**



$$\begin{array}{r} \frac{1}{2} 5\ 00 \\ \times 42 \\ \hline 21\ 0 \\ + 84\ 0 \\ \hline 105\ 0\ 00 \end{array}$$



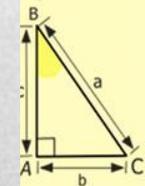
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$$\sin 90^\circ = 1$$

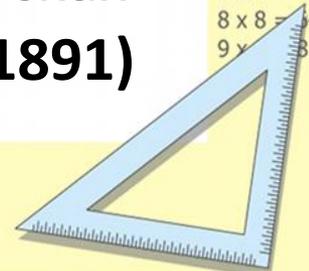


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



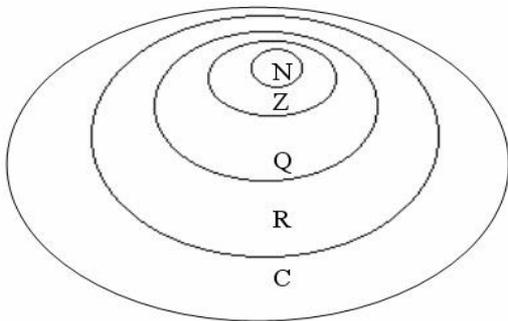
VII. Великие математики

- Обладал феноменальной памятью, умел работать всюду, при любых условиях. Имел 13 детей, причём мог писать свои работы, держа одного из них на коленях, а остальные при этом играли рядом.
- Парижская академия 12 раз награждала премией.
- Области исследований: Интегральное исчисление. Алгебра. Дифференциальное исчисление. Механика. Теория чисел. Тригонометрия. Современное понимание логарифма. Обозначение мнимой единицы i



ОТВЕТ:

**Леонард Эйлер
(1707 – 1783)**



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

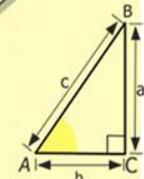
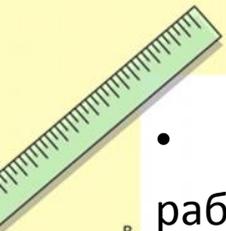
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

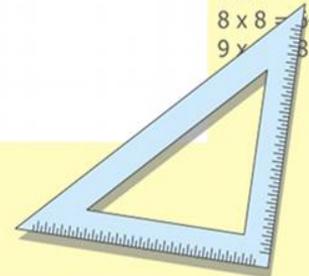
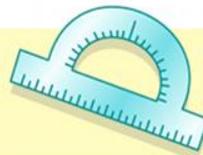
$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$

- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



$$\begin{array}{r} 1 \\ \times 2500 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$



VII. Великие математики

- Фридрих II (император Римской империи) проводил математические соревнования, на которых противники обменивались задачами. На таких турнирах заблистал талант этого человека.

- Работы:

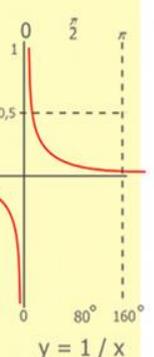
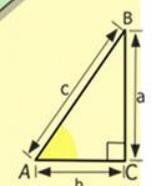
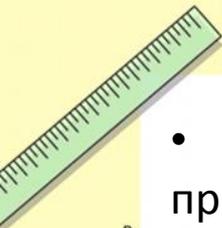
- Книга абака (Liber Abaci), написанная в 1202 году, но дошедшая до нас во втором своем варианте, который относится к 1228 г.
- Практики геометрии" (1220г.)
- Книга квадратов (1225г.)

- **Его Числа** — элементы числовой последовательности 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, ...
в которой каждое последующее число равно сумме двух предыдущих чисел.

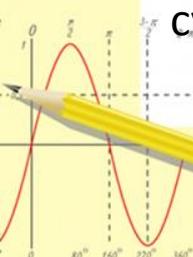


ОТВЕТ:

**Леона́рдо
Пиза́нский
(Фибона́ччи)
(1170 – 1250)**



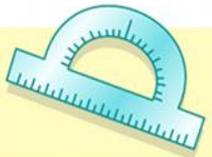
$$\begin{array}{r} 1\ 5\ 00 \\ \times 42 \\ \hline 21\ 0 \\ + 84\ 0 \\ \hline 105\ 000 \end{array}$$



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

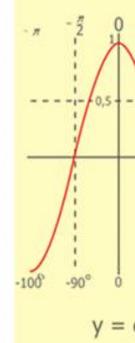
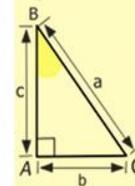
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

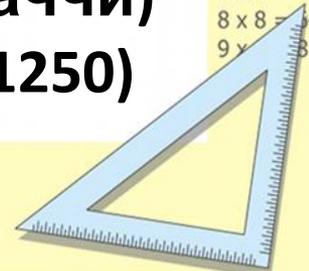


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



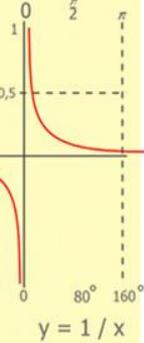
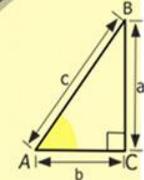
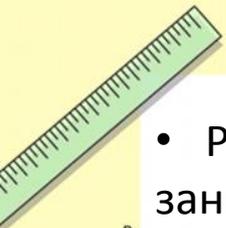
VII. Великие математики

- Родился в семье прокурора, с 19 лет занимался адвокатской деятельностью, затем становится советником парламента, а впоследствии самого короля.
 - Ввёл специальную символику из прописных букв латинского алфавита. Для неизвестных величин применял гласные буквы, для переменных — согласные.
 - Известен, как создатель алгебры.
 - Его теорема : сумма корней приведенного квадратного уравнения равна коэффициенту при x , взятому с противоположным знаком, а произведение — свободному члену.
- В интернете под его фото присутствует «шуточная» запись - послание ученикам: « Я вам создал такую теорему, а вы постоянно решаете через дискриминант».

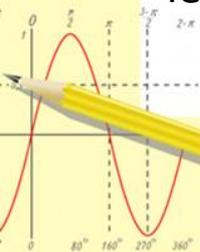


ОТВЕТ:

**Франсуа Виёт
(1540 – 1603)**



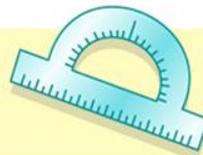
$$\begin{array}{r} 1 \\ \times 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

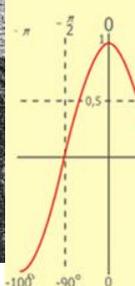
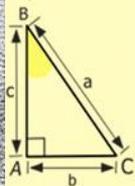


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

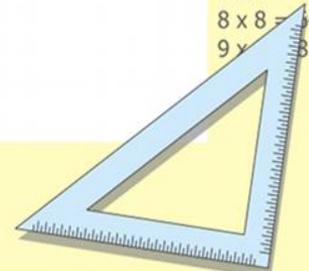
$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



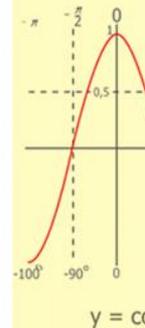
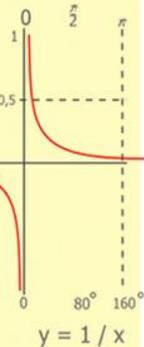
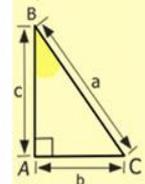
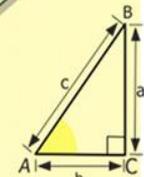
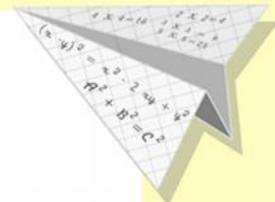
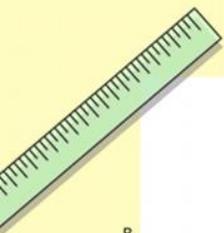
$$y = \cos$$

- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



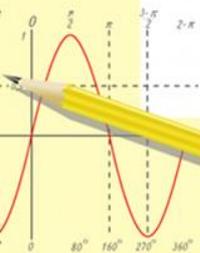
VIII. Числа в жизни

Начинает команда, которая набрала меньшее количество баллов. Отвечают команды по очереди. Выигрывает команда, дающая ответ последней.



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 840 \\ \hline 105000 \end{array}$$

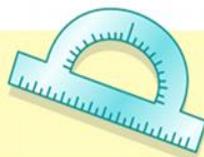
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

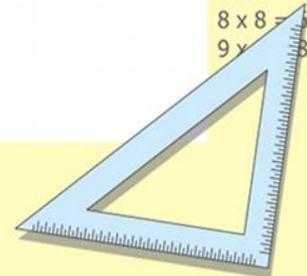
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

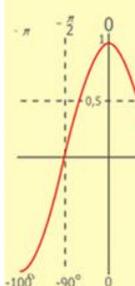
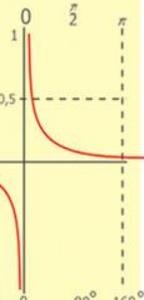
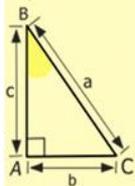
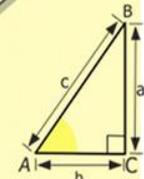
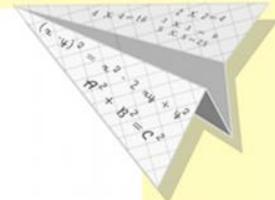
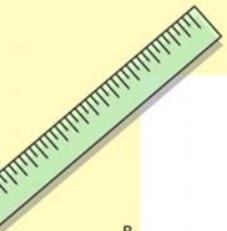
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



VIII. Числа в жизни

1. Назовите картины и художественные фильмы, в названии которых содержатся числа.
2. Пропойте строки песен, в которых присутствуют числа.
3. Назовите пословицы с числами.

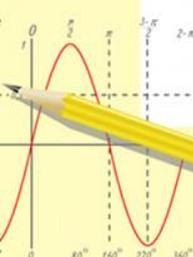


$$y = 1/x$$

$$y = \cos$$

$$\begin{array}{r} 1\ 5\ 00 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105\ 000 \end{array}$$

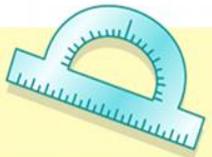
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

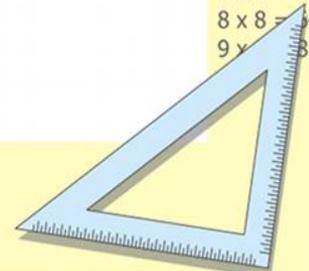


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$

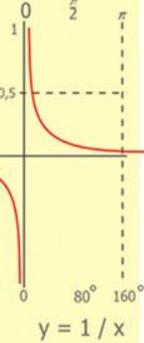
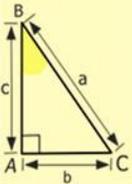
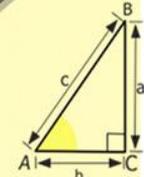
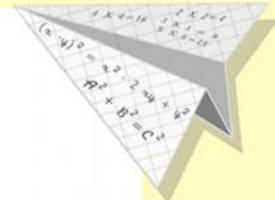
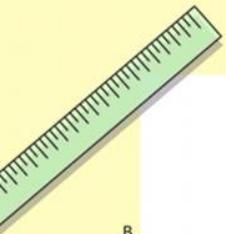
$$\frac{x}{70}$$



IX. И снова «серьёзная» задача

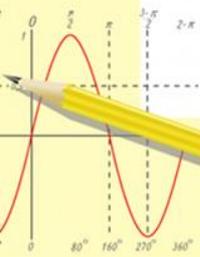
Белка за 20 минут приносит орех в гнездо. Далеко ли от орешника её гнездо, если известно, что налегке белка бежит со скоростью 5 м/сек, а с орехом 3 м/сек?

Ответ: 2250 метров



$$\begin{array}{r} 1 \ 5 \ 00 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

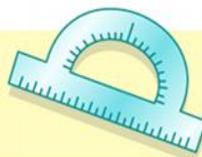
- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

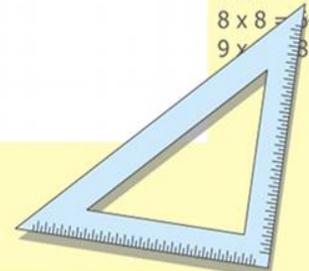


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



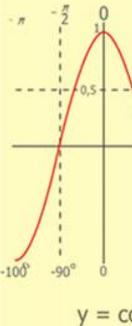
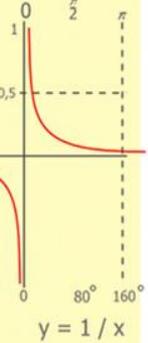
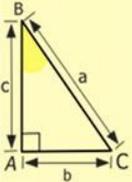
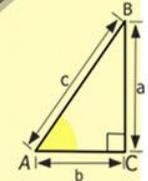
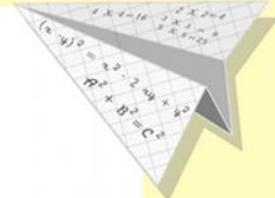
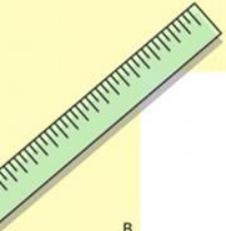
IX. Решение задачи

20 минут = 1200 секунд

Пусть x - искомый путь.

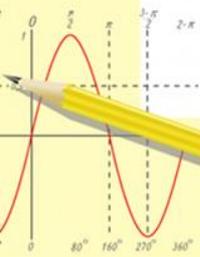
$$\text{Уравнение: } \frac{x}{5} + \frac{x}{3} = 1200$$

Ответ: 2250 метров



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

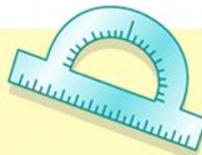
- $2 \times 2 = 4$
- $3 \times 3 = 9$
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- $6 \times 6 = 36$
- $7 \times 7 = 49$
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- $9 \times 9 = 81$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

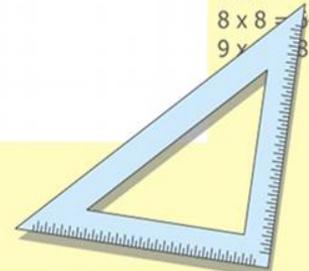
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

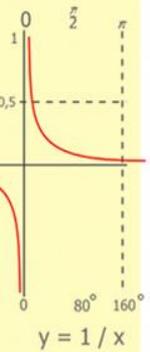
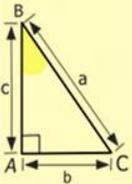
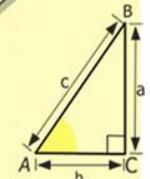
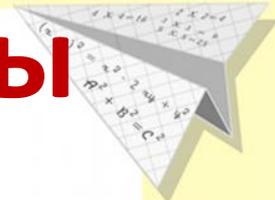
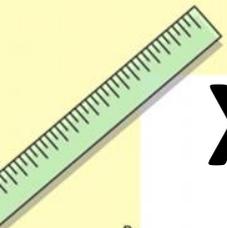
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



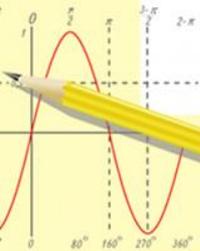
Х. Математические ребусы

Выигрывает команда, дающая ответ первой, но только после поднятия руки.



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

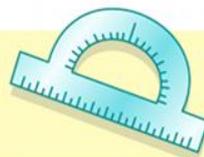
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

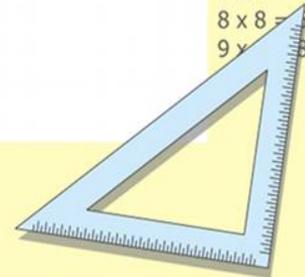
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



Х. Математические ребусы



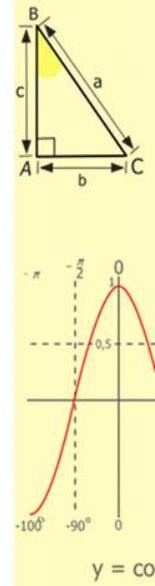
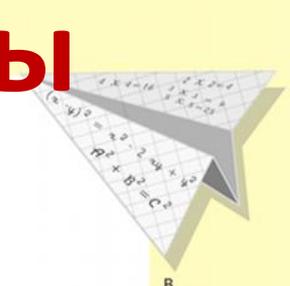
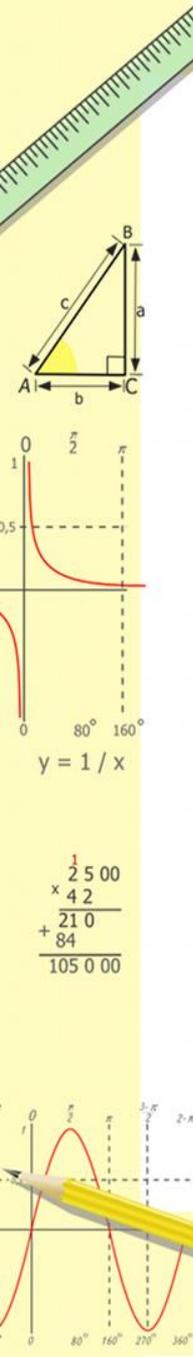
Ответ: Разность.



Ответ: Алгебра.



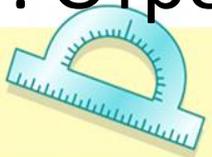
Ответ: Отрезок.



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

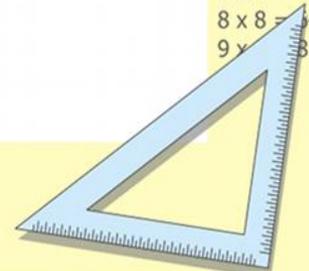
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$



$$\begin{cases} x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$





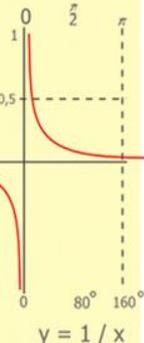
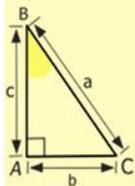
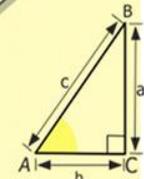
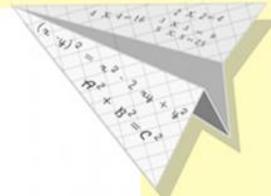
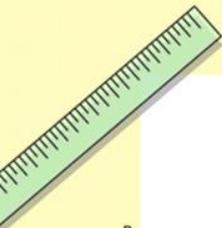
Ответ: Компьютер.



Ответ: Квадрат.

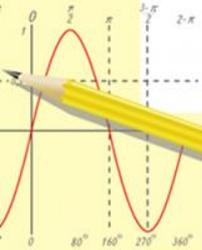


Ответ: Шкатулка.



$$\begin{array}{r} 1\ 2\ 5\ 00 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105\ 000 \end{array}$$

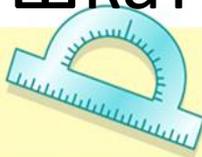
- $y = \cos$
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

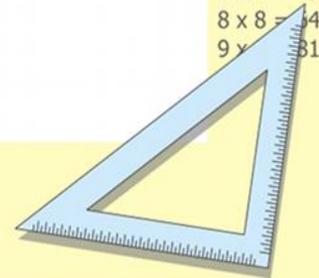
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

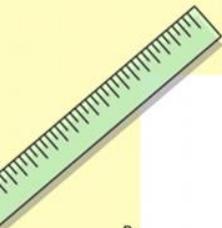
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin \\ x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$





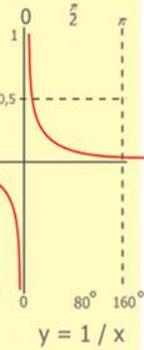
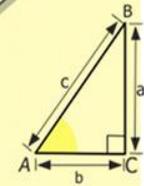
Ответ: Диагональ.



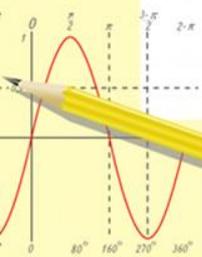
Ответ: Гаусс.



Ответ: Квадрат.

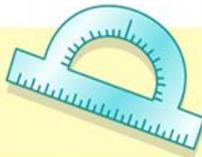


$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$



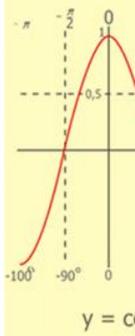
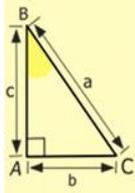
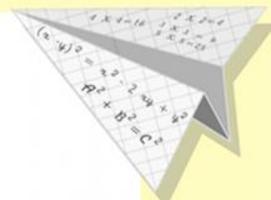
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

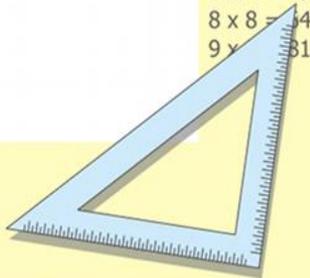


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



XI. Мозговой штурм капитанов

1. Найдите произведение всех целых чисел от (-99) до 99.

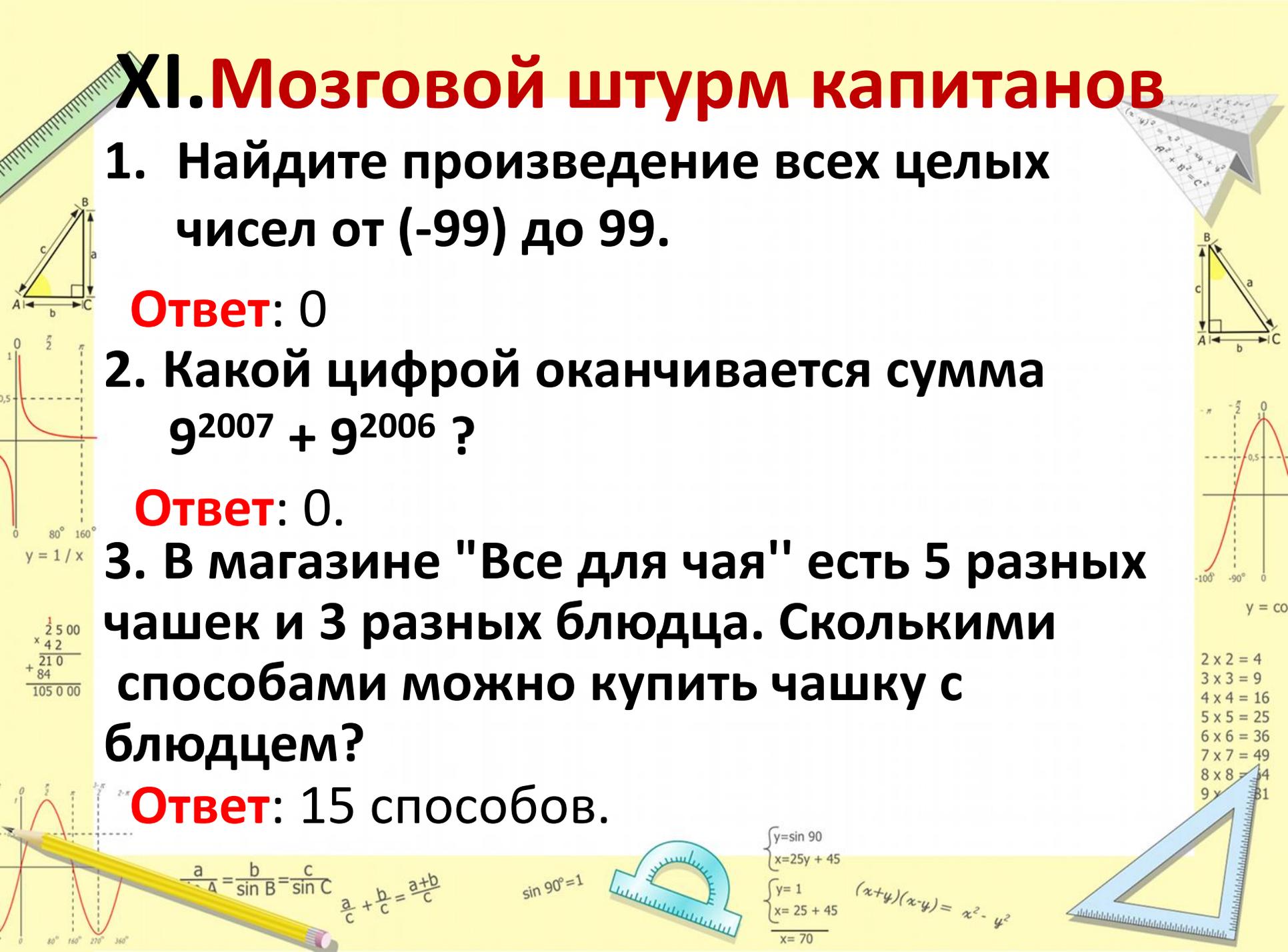
Ответ: 0

2. Какой цифрой оканчивается сумма $9^{2007} + 9^{2006}$?

Ответ: 0.

3. В магазине "Все для чая" есть 5 разных чашек и 3 разных блюдца. Сколькими способами можно купить чашку с блюдцем?

Ответ: 15 способов.

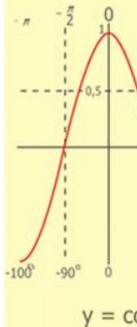
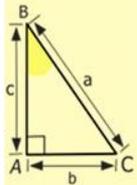
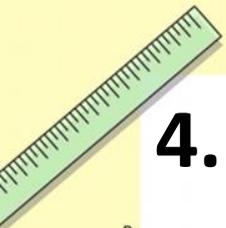


4. Вот задача не для робких! Вычитай, дели и множь, плюсы ставь, а также скобки! Верим, к финишу придёшь.
 $33333 = 11$

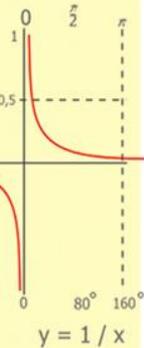
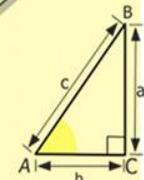
Ответ: $33:3+3-3=11$
 $3\cdot3+3-3:3=11$

Ответ: 7 петухов,
 4 поросёнка

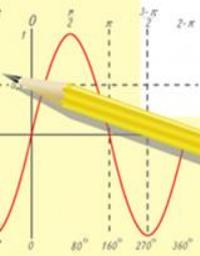
5. По тропинке вдоль кустов
 шло
 Одиннадцать хвостов
 Сосчитать я также смог,
 Что шагало тридцать ног,
 А теперь вопрос таков:
 Сколько было петухов?
 И узнать я был бы рад,
 Сколько было поросят?



- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



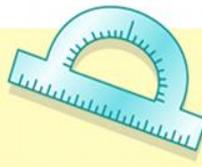
$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 840 \\ \hline 105000 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

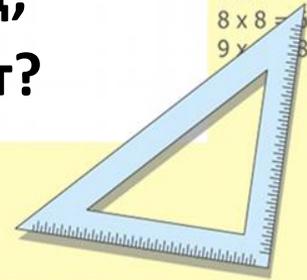
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

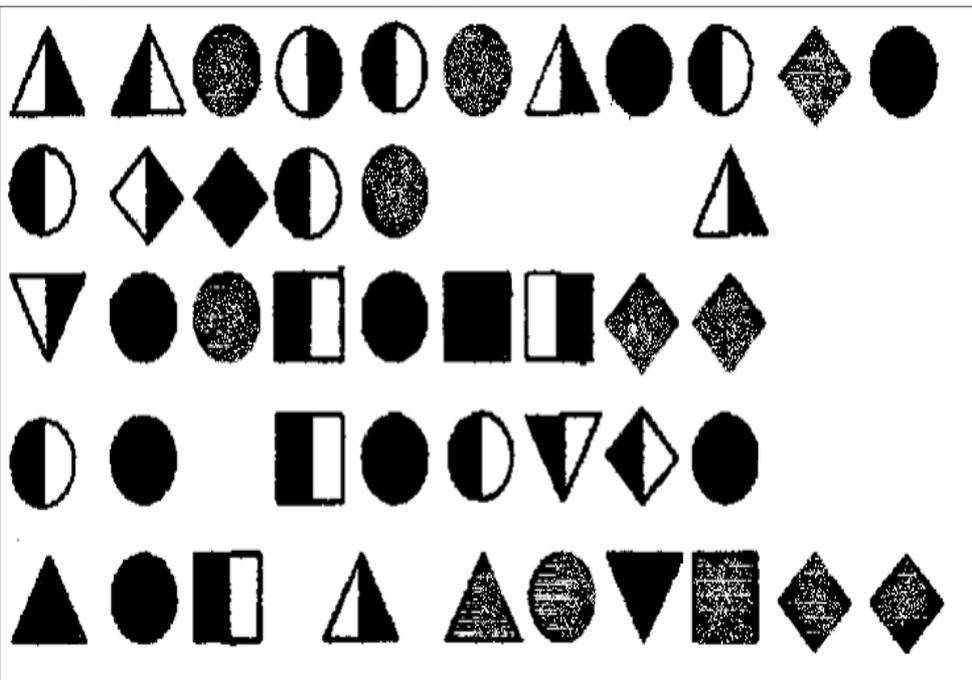
$$(x+y)(x-y) = x^2 - y^2$$



XII. Шифр

Расшифровать высказывание А. С. Пушкина о геометрии.

Зашифрованное высказывание

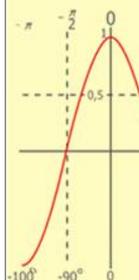
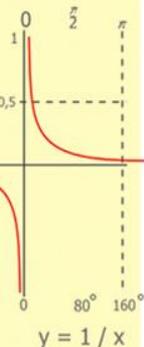
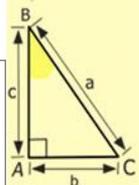
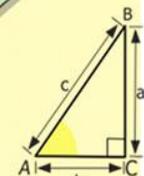
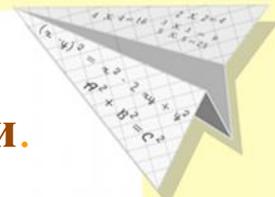
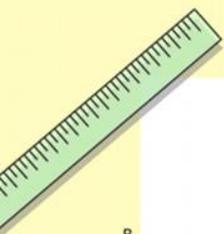


Ключ



Ответ:

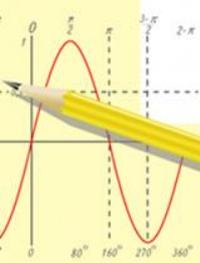
«Вдохновение
нужно в геометрии
не меньше, чем в
ПОЭЗИИ»



$$\begin{array}{r} 1 \\ \times 2500 \\ 210 \\ + 84 \\ \hline 105000 \end{array}$$

y = co

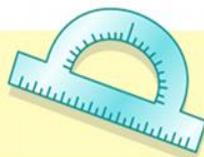
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

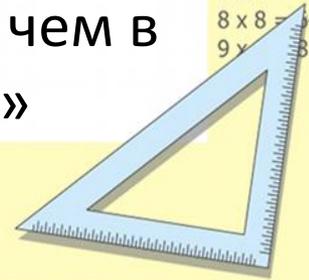


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



Расшифровать высказывание М.В.Ломоносова о науках.

Зашифрованное высказывание

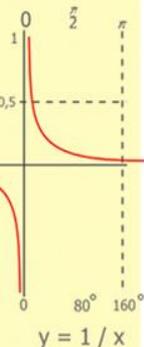
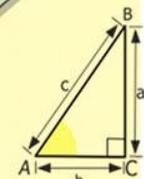
3-4 2-1 2-4 2-1 3-5
 2-5 2-6 1-1 1-2 1-1 3-5
 2-6 3-2 2-2 1-1
 3-3 2-1 1-5 2-1 2-2 2-1
 2-4 1-1 3-1 1-4 2-4 1-1 3-1 2-1 2-2 1-1
 1-4 1-4
 1-3 2-3 1-1 1-5

Ключ

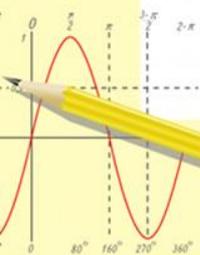
1	а	в	г	е	з	
2	и	к	л	м	п	р
3	т	у	ф	х	я	
	1	2	3	4	5	6

Ответ:

«Химия - правая рука физики,
 математика - её глаз»



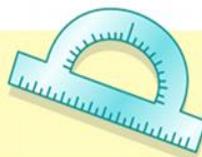
$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

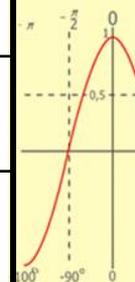
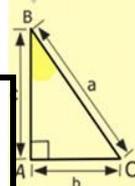


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

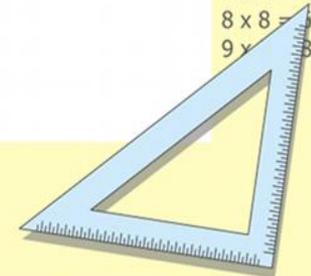
$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



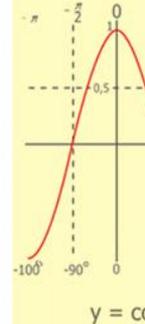
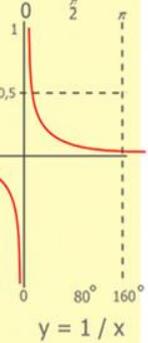
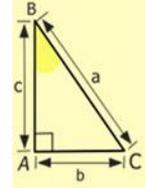
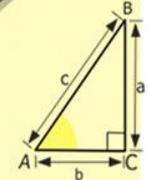
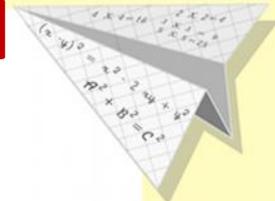
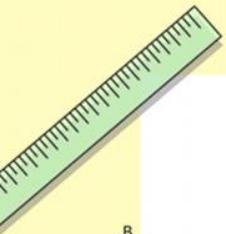
$$y = \cos$$

$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



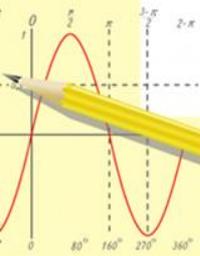
XIII. Вопросы или задачи соперникам.

Задаём по 3 вопроса или задачи.



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

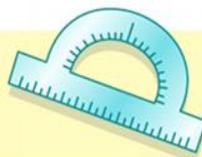
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

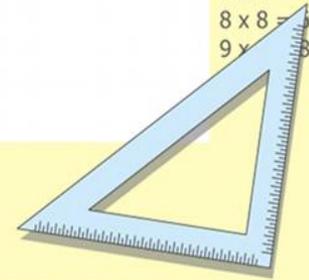
$$\sin 90^\circ = 1$$



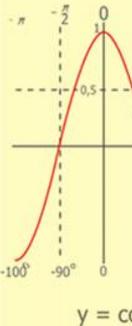
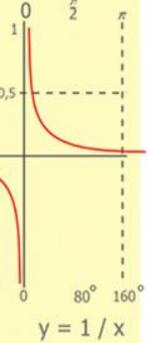
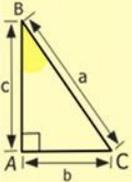
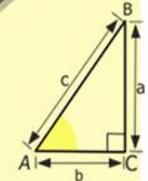
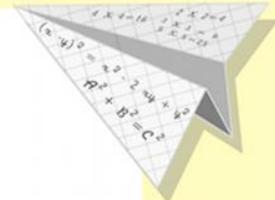
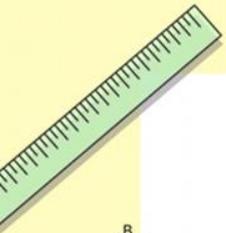
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$

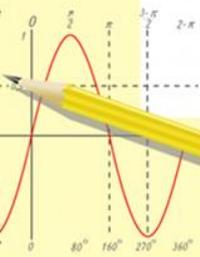


Поздравляем!!!



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 840 \\ \hline 105000 \end{array}$$

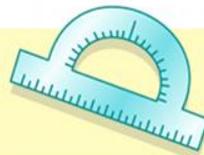
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

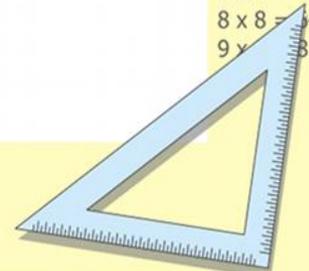
$$\sin 90^\circ = 1$$



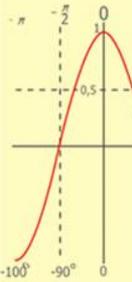
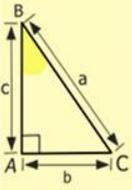
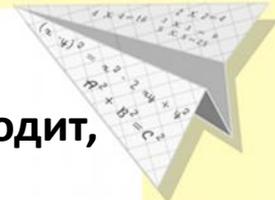
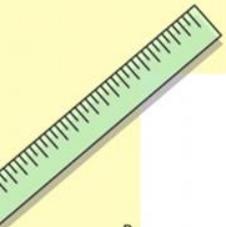
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

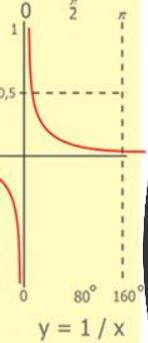
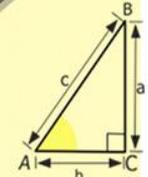
$$(x+y)(x-y) = x^2 - y^2$$



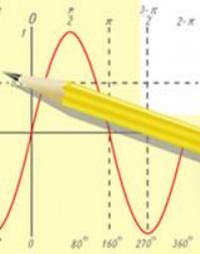
Есть о математике молва,
 Что она в порядок ум приводит,
 Потому хорошие слова
 Часто говорят о ней в народе.
 Ты нам, математика, даешь
 Для победы трудностей закалку,
 Учится с тобою молодежь
 Развивать и волю, и смекалку.
 И за то, что в творческом труде
 Выручаешь в трудные моменты,
 Мы сегодня искренне тебе
 Посылаем гром аплодисментов.



- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



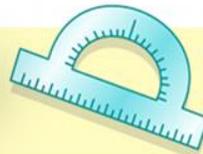
$$\begin{array}{r}
 1\ 2\ 5\ 00 \\
 \times 4\ 2 \\
 \hline
 21\ 0 \\
 + 84 \\
 \hline
 105\ 0\ 00
 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$



$$\begin{cases}
 y = \sin 90 \\
 x = 25y + 45
 \end{cases}$$

$$\begin{cases}
 y = 1 \\
 x = 25 + 45 \\
 \hline
 x = 70
 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$

