

Математик

НА 2

а

На 3

На 4

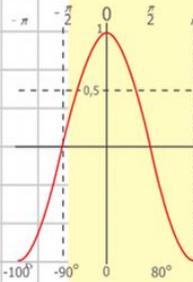
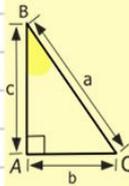
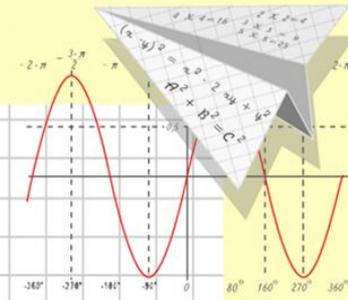
Признаки

ДЕЛИМОСТИ

НА 5

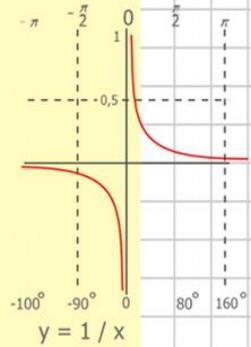
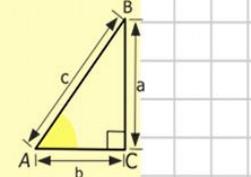
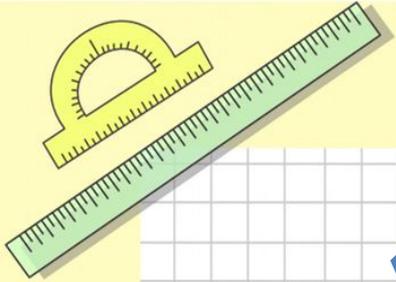
10

100



$y = \cos x$

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



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

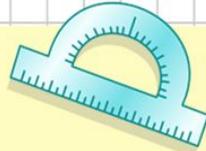


$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

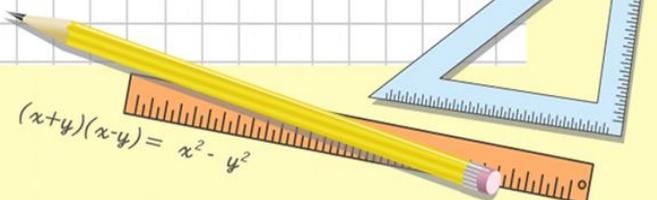
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$



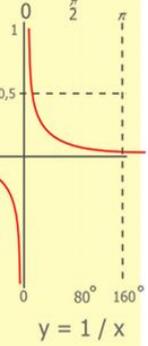
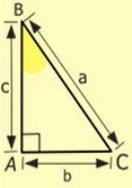
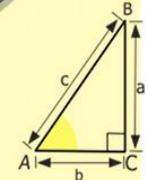
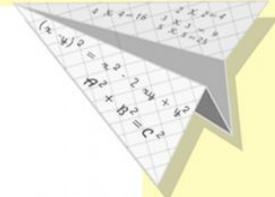
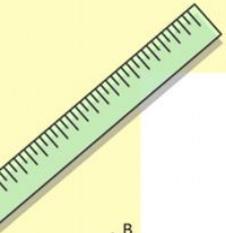
$\sin 90^\circ = 1$



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

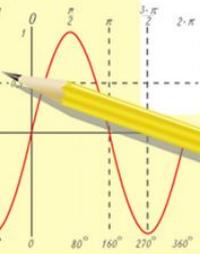


$$(x+y)(x-y) = x^2 - y^2$$



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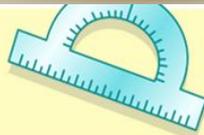
- 2 x 2 = 4
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$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

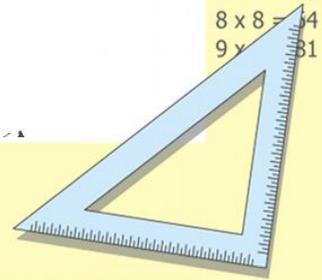
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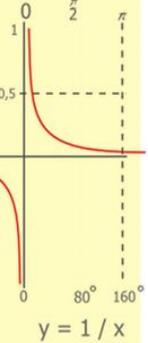
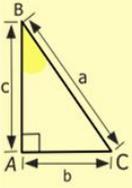
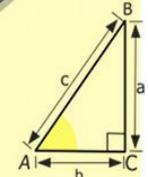
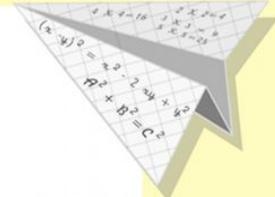
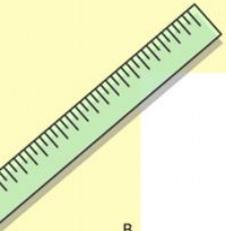
$$\begin{cases} x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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



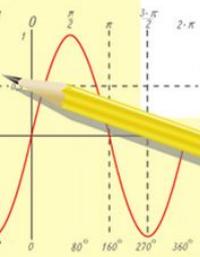
«Крупное научное открытие дает решение крупной проблемы, но и в любом задаче присутствующей трудности открытия а».

Дьёрдь
Пойа



$$\begin{array}{r} \frac{1}{2} 500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

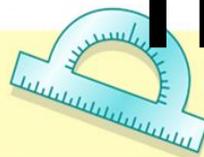
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$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

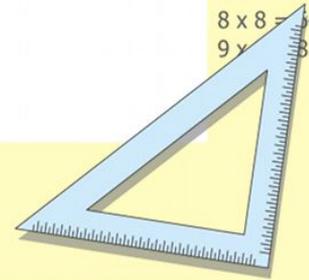
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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



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

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



Задание

Проверьте, делится ли на 2
сумма чисел $(3899 + 4968)$?

Не делится.

Проверьте, делится ли на 5
сумма $(85675 + 765)$?

Делится.

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

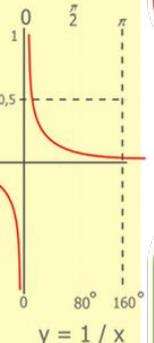
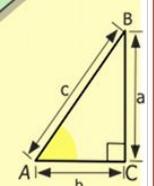
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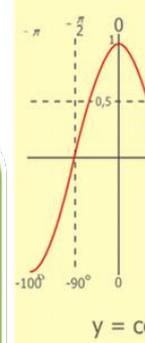
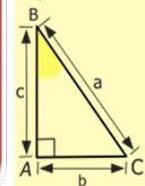
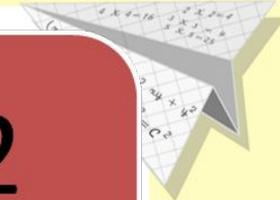
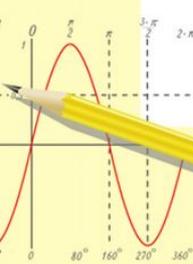
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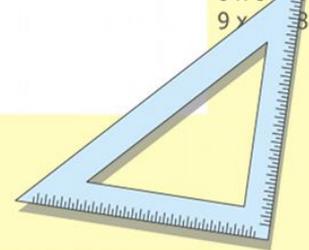
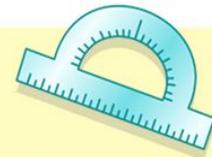
$$(x+y)(x-y) = x^2 - y^2$$



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



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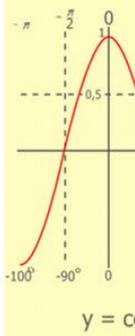
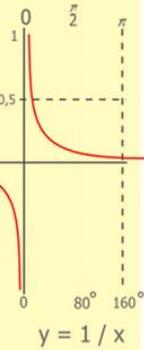
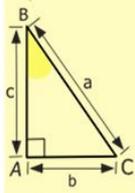
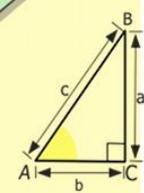
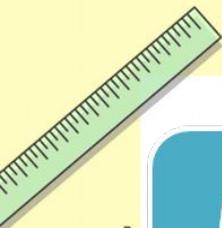


Делится ли число 1110 на 3?

1110

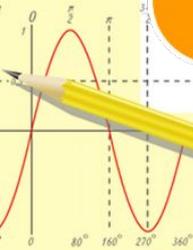
2025 раз

Делится ли данное число на 3, на 9?



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

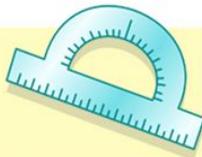
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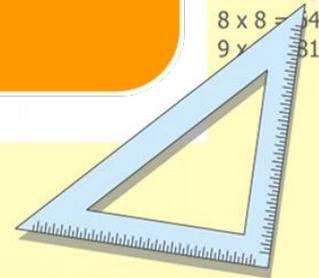
$$\sin 90^\circ = 1$$



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

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



125 159 297 264 171 122 462 184

Делятся на 3:

Не делятся на 3:

Сумма цифр:

Сумма цифр:

15 18 12 3
 9 3 12 3
 3 3

~~7~~ ~~5~~ 13
 3 3 3

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

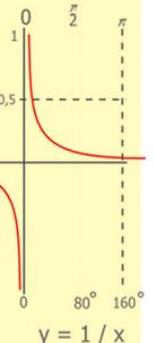
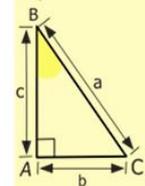
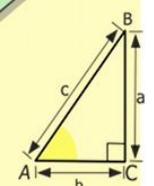
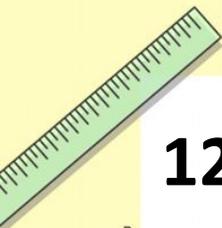
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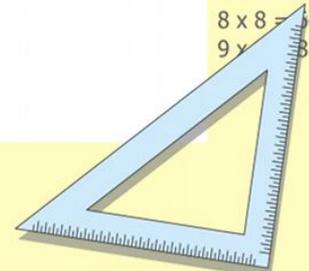
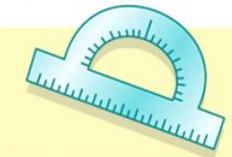
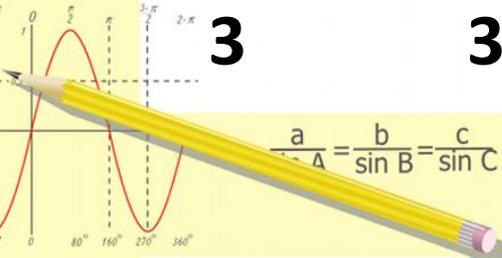
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125 159 297 264 171 122 462 184

Делятся на 9:

Не делятся на 9:

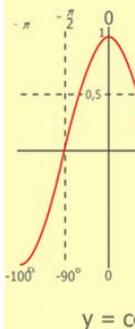
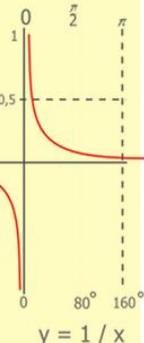
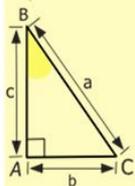
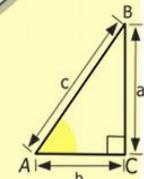
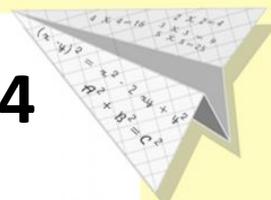
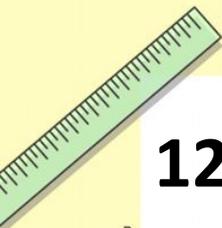
Сумма

цифр: 18 9 9

Сумма

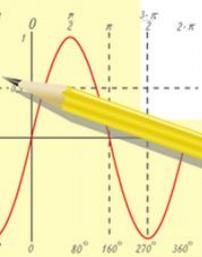
цифр: 8 5 13

9 9 12 12 9 9



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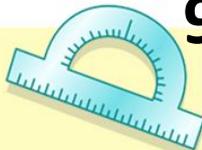
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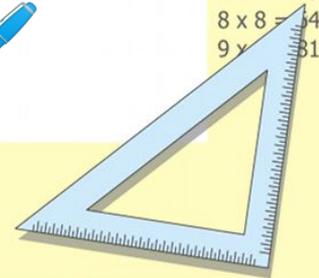


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

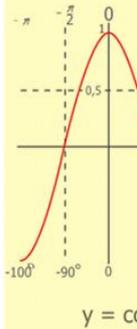
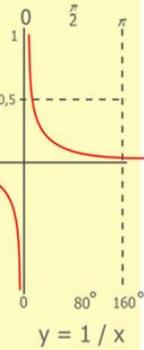
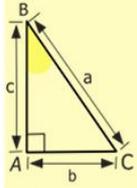
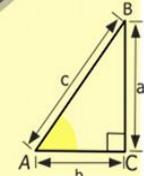
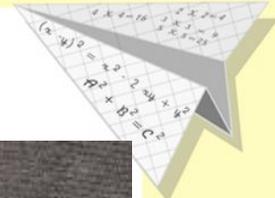
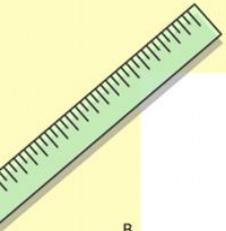
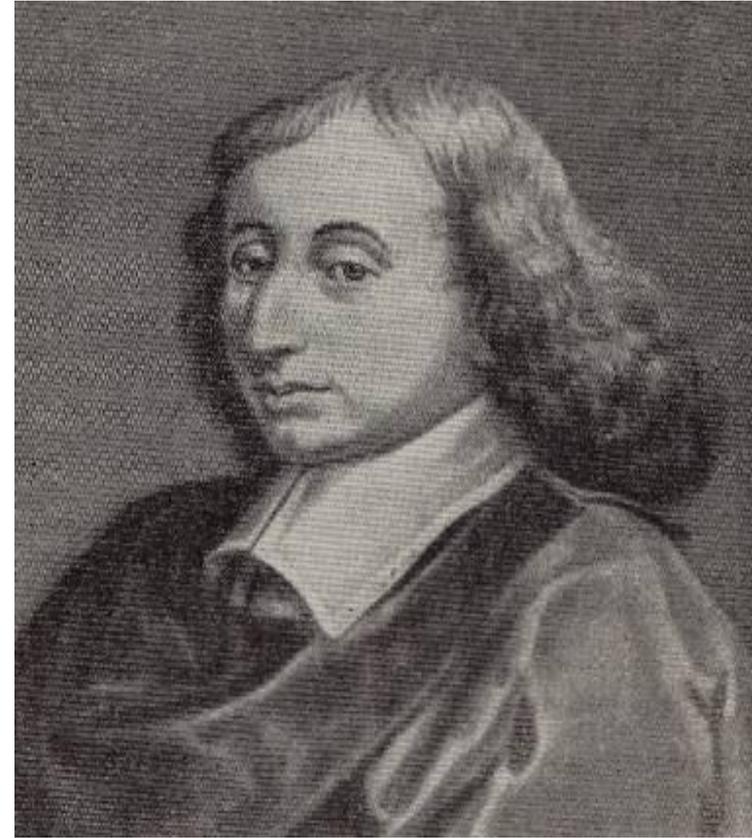
$$\frac{x}{70}$$

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



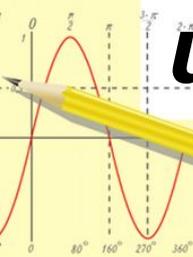
Блез Паскаль (1623 – 1662)

Этот человек нашел общий алгоритм для нахождения признаков делимости любого целого числа на любое другое целое число.



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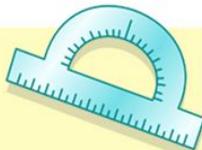
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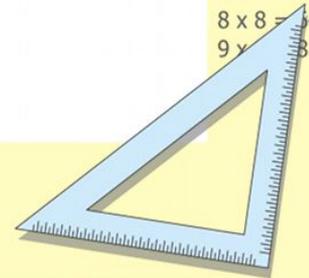
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Математический диктант

Верно

1) 529  3

2) 735  3

3) 5420  9

4) 748  3

5) (639 + 594)  9

6) (747 + 333)  9

Проверьте себя:

НЕТ

ДА

НЕТ

НЕТ

ДА

ДА

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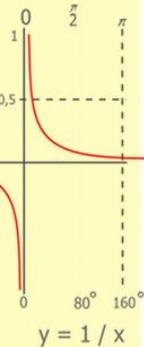
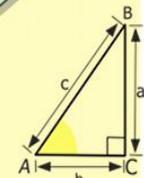
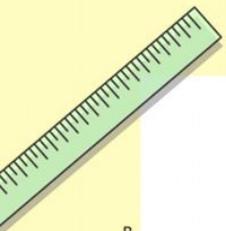
$$\sin 90^\circ = 1$$

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

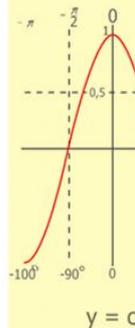
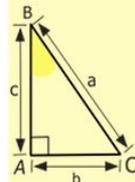
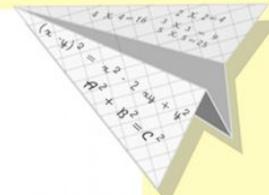
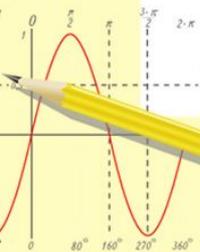
$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

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

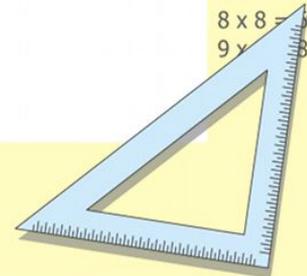


$$\begin{array}{r} 1 \ 2 \ 5 \ 00 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$



$$y = \cos$$

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



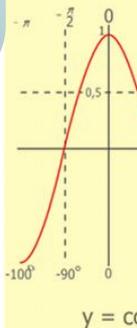
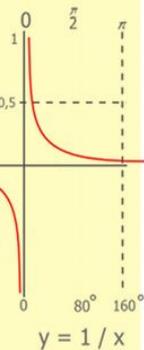
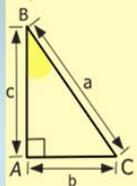
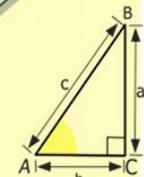
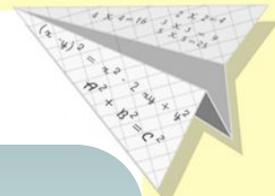
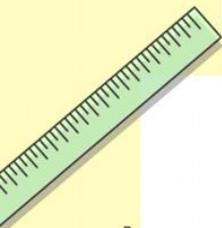
Признаки делимости на 3 и 9

на
9:

Если сумма цифр числа делится на 9, то и само число делится на 9.

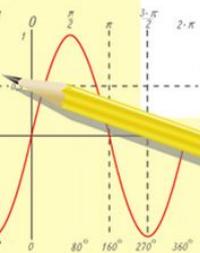
на 3:

Если сумма цифр числа делится на 3, то и само число делится на 3.



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

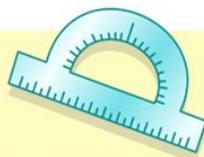
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



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

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

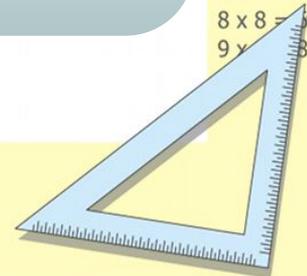
$$\sin 90^\circ = 1$$



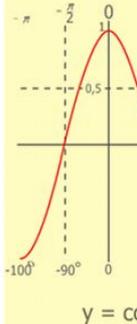
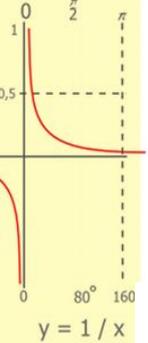
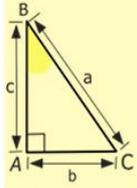
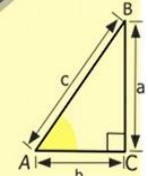
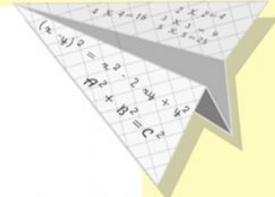
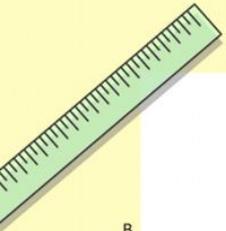
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

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

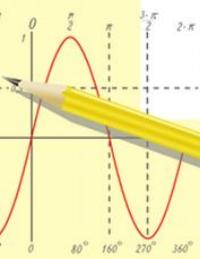
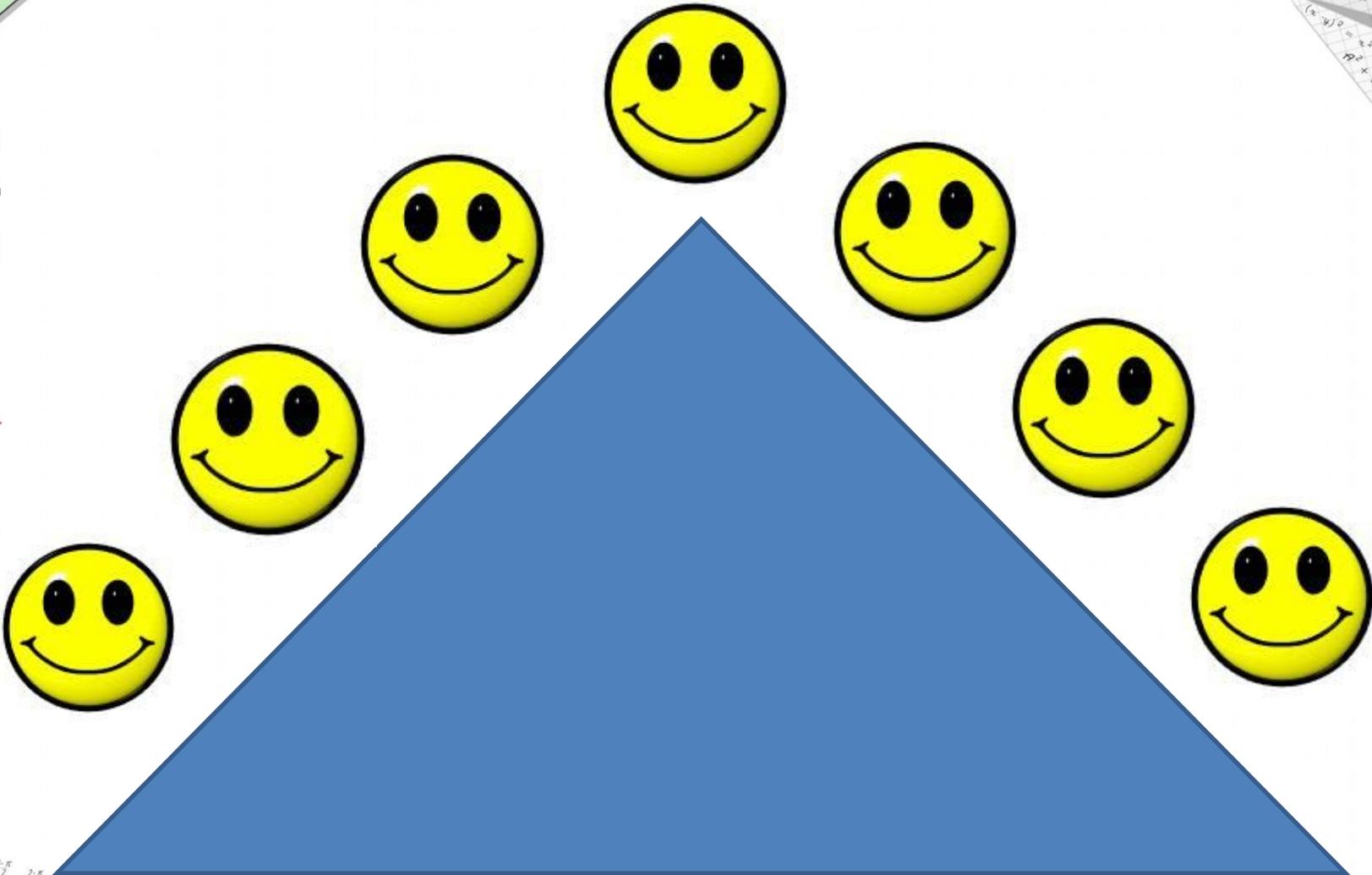


«Лестница успеха»



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

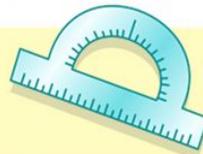
- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
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$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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

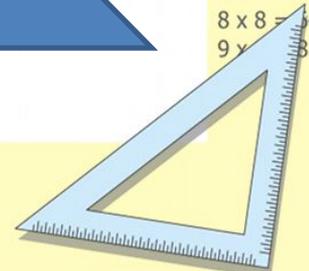


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

$$x = 70$$

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



Запоминалки

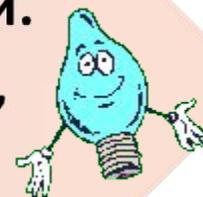
На 3

- Ты сложи все цифры вместе,
- сумму на 3 раздели.
- Если все разделишь ты,
- То число на 3 дели.



На 9

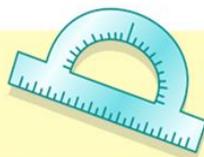
- Когда число делить на 9?
- Ты сумму цифр посмотри.
- Коль сумма делится на 9,
- число ты смело раздели.



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

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

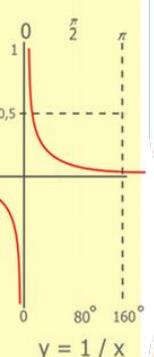
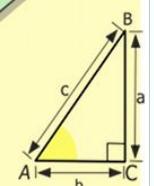
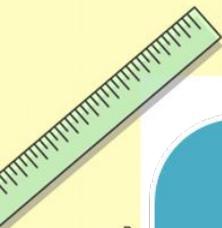
$$\sin 90^\circ = 1$$



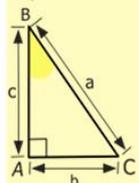
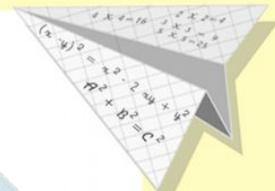
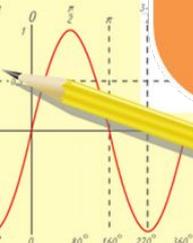
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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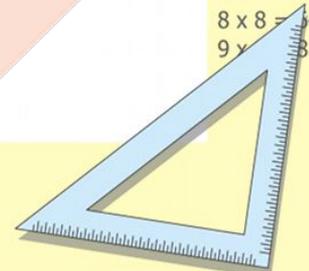
$$(x+y)(x-y) = x^2 - y^2$$



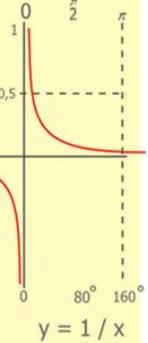
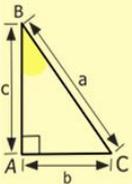
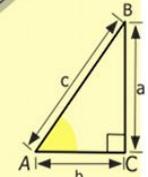
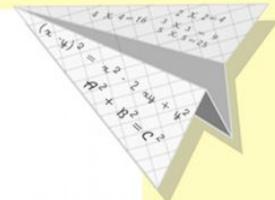
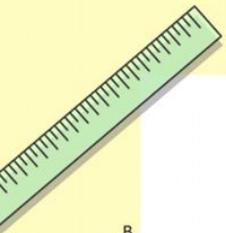
$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$



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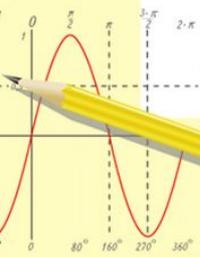


«Математическая задача
иногда столь же
увлекательна, как
кроссворд, и напряженная
умственная работа
может быть столь же
желанным упражнением,
как
стремительный теннис».



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

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- 3 x 3 = 9
- 4 x 4 = 16
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