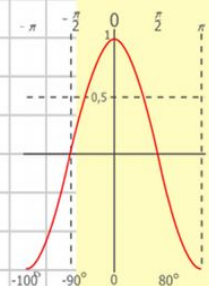
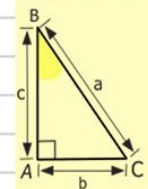
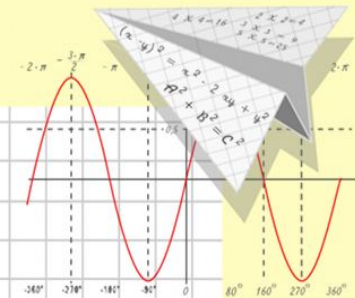
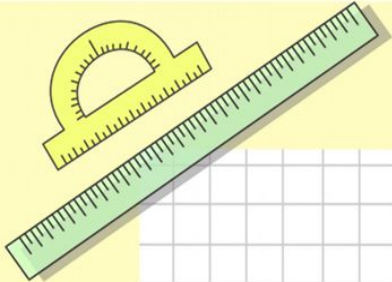


# Математик

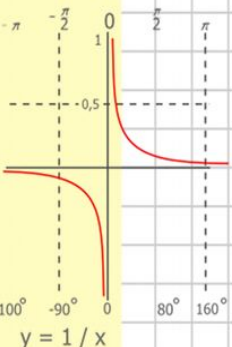
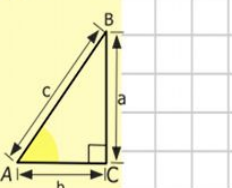
## а

# Формулы сокращенного умножения.



$y = \cos x$

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



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



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

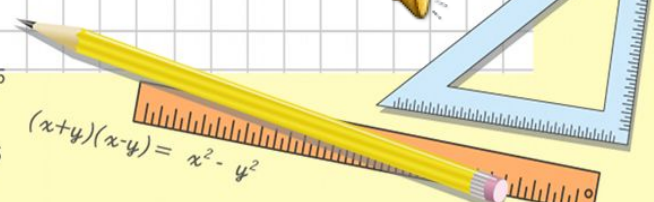
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$



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



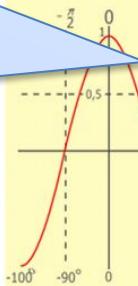
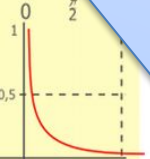
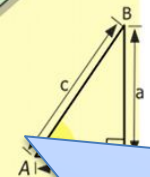
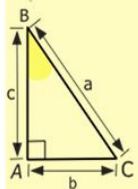
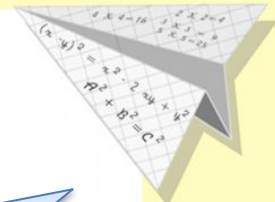
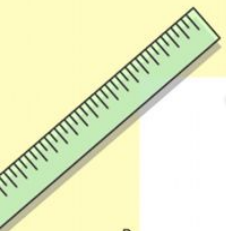
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$



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

# Три пути ведут к знанию:

- Путь размышления самый благородный,
  - Путь подражания самый легкий
  - И путь опыта это путь самый горький
- Конфуций*



$$y = 1/x$$

$$\begin{array}{r} 1\ 2\ 5\ 00 \\ \times 42 \\ \hline 210 \\ + 840 \\ \hline 105000 \end{array}$$

$$y = \cos$$

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



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

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

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



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

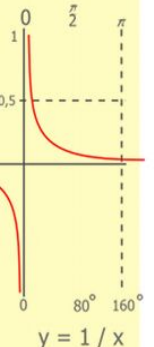
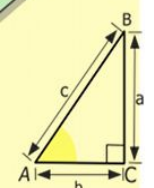
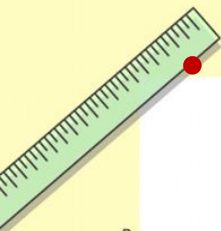
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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

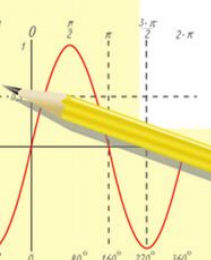


# ВОПРОС - ОТВЕТ

- **Что называют одночленом?**
  - **Какие слагаемые называются подобными?**
  - **Что называют многочленом?**
  - **Как умножить степени с одинаковым основанием?**
  - **Как возвести произведение в степень?**
- СУММУ ОДНОЧЛЕНОВ
  - **Возвести в данную степень каждый множитель**
  - ПРОИЗВЕДЕНИЕ ЧИСЕЛ, ПЕРЕМЕННЫХ И ИХ СТЕПЕНЕЙ
  - **СЛАГАЕМЫЕ С ОДИНАКОВОЙ БУКВЕННОЙ ЧАСТЬЮ**
  - ОСНОВАНИЕ ОСТАВИТЬ ТЕМ ЖЕ, А ПОКАЗАТЕЛИ ПЕРЕМНОЖИТЬ



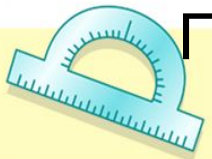
$$\begin{array}{r} 1 \ 2 \ 5 \ 00 \\ \times 4 \ 2 \\ \hline 21 \ 0 \\ + 84 \phantom{00} \\ \hline 105 \ 0 \ 00 \end{array}$$



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

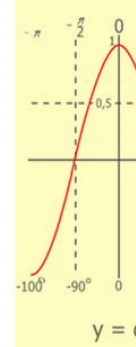
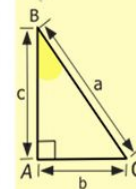
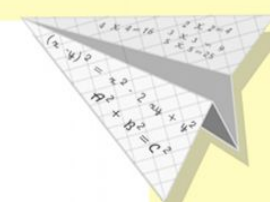
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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

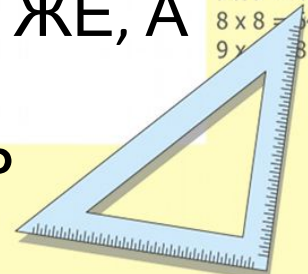


$$\begin{cases} y = \sin 90 \\ x = 25 + 45 \\ y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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



- 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



- Квадрат  $b$  .

- Разность квадратов  $a$  и  $b$  :

$b^2$

- Сумма квадратов  $a$  и  $b$  :

$+b^2$

- Произведение  $a$  и  $b$  :

- Удвоенное произведение  $a$  и  $b$  :

$2ab$

- Сумма  $a$  и  $b$  :

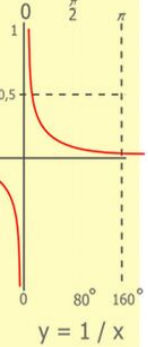
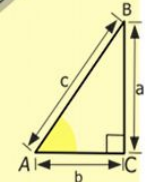
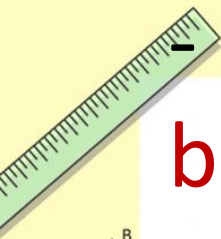
- Разность  $a$  и  $b$  :

$a-b$

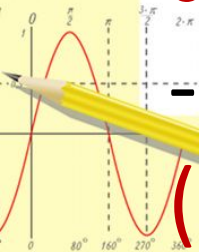
- Квадрат суммы  $a$  и  $b$  :

$(a+b)^2$

$a^2 -$



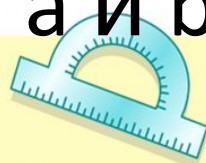
$$\begin{array}{r} 1 \\ \times 2500 \\ \hline 2500 \\ + 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$



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

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

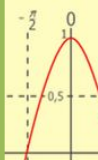
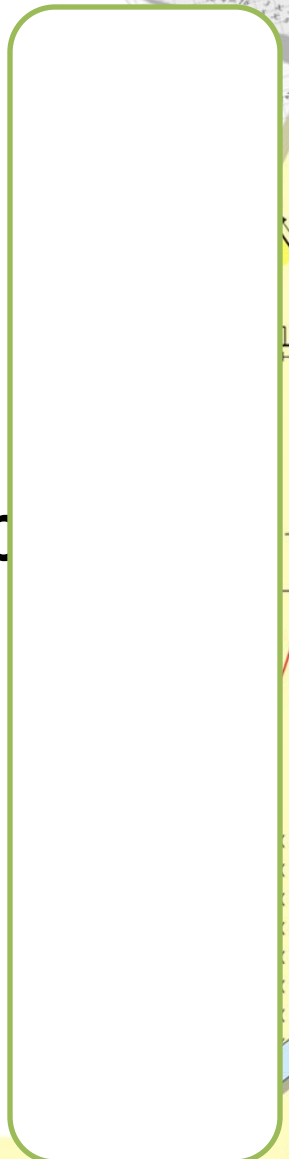
$$\sin 90^\circ = 1$$



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

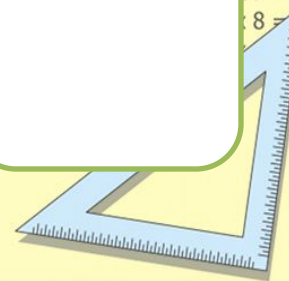
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

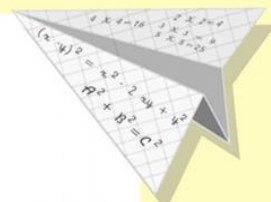
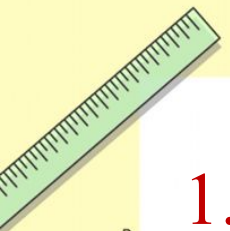
$$(x+y)(x-y) = x^2 - y^2$$



$$y = \cos$$

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





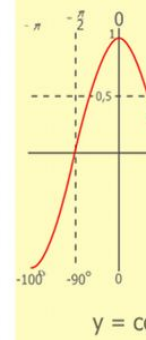
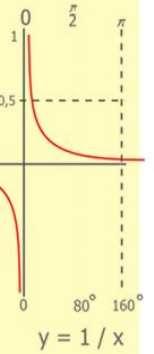
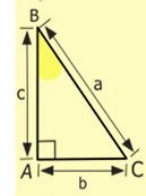
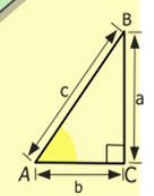
1. Найдите произведение  $5b$  и  $3c$ . Чему равно удвоенное произведение этих выражений?

2. Прочитайте выражения.

- а)  $x + y$     в)  $(k + 1)^2$     д)  $(a - b)^2$   
 б)  $c^2 + p^2$     г)  $p - y$     е)  $c^2 - x^2$

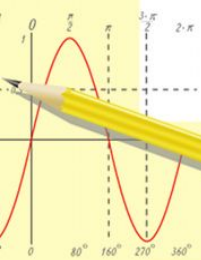
3. Перемножить данные многочлены.

$(4 - a) \cdot (3 + a) =$



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

- 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



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

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

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



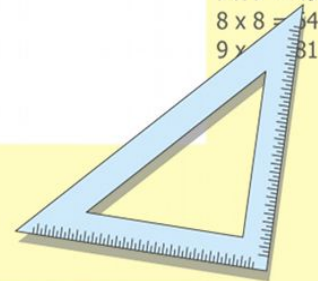
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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


---


$$x = 70$$

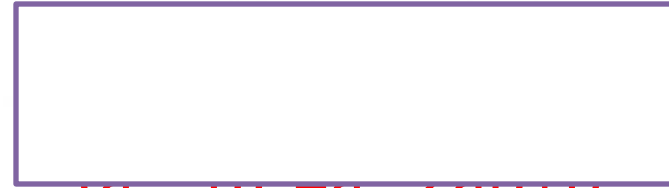
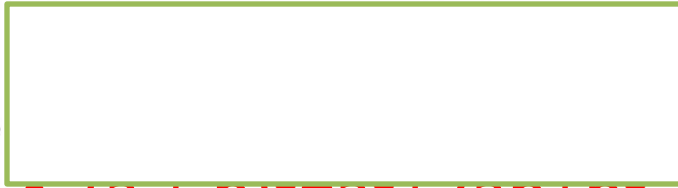
$$(x+y)(x-y) = x^2 - y^2$$



# Выполните умножение многочлена на многочлен:

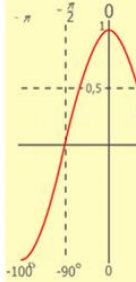
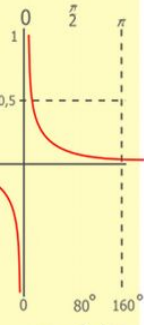
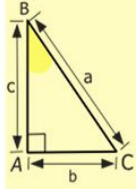
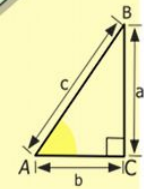
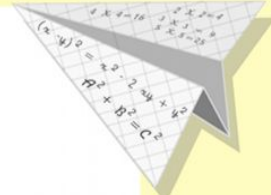
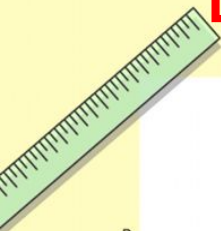
- $(x + y)^2$
- $(c + d)^2$
- $(2p + s)^2$

- $(2m - 3n)^2$
- $(x - 4y)^2$
- $(3p - 4s)^2$



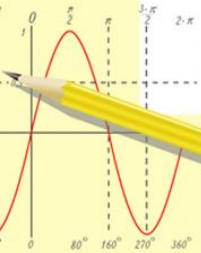
~~$(a + b)^2 = a^2 + 2ab + b^2$~~

~~$(a - b)^2 = a^2 - 2ab + b^2$~~



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

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



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

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

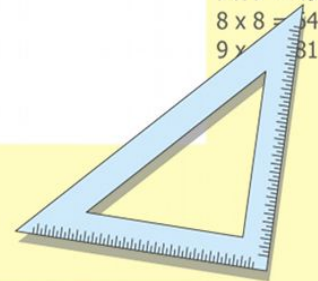
$$\sin 90^\circ = 1$$

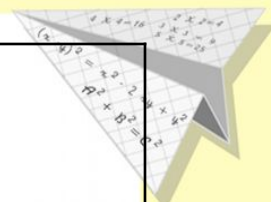
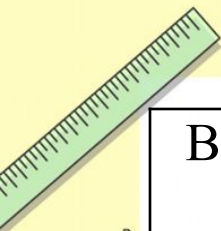


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

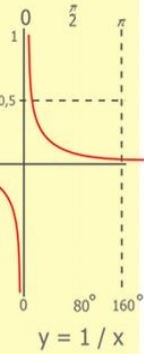
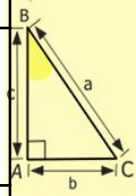
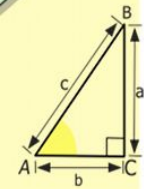
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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





Выражение	Квадрат 1 выражения	Удвоенное Произведение	Квадрат 2 выражения	Итог
$(a + 4)^2$	$a^2$	$8a$	$16$	$a^2 + 8a + 16$
$(8 - x)^2$				
$(2y + 1)^2$				
$(0,5b - 2)^2$				



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

- 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



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

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

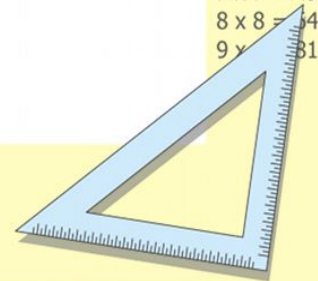
$$\sin 90^\circ = 1$$

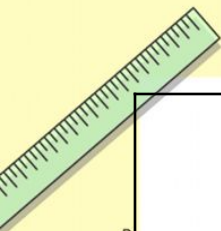


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

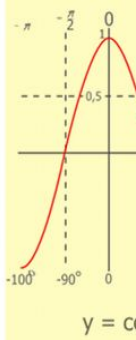
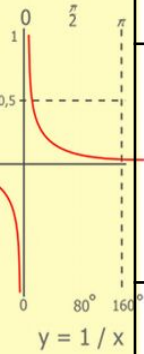
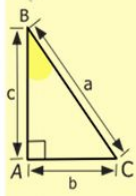
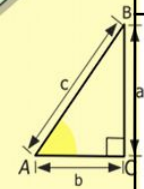
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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



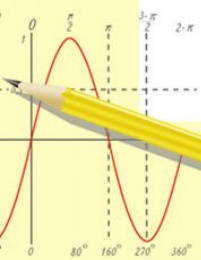


	$(y - 9)^2$	$(5x+4y)^2$	$(2a - 0,5x)^2$
<b>1</b>	$y^2 - 9y + 81$ <b>A</b>	$25x^2 - 20xy + 16y^2$ <b>Г</b>	$4a^2 - 2ax + 0,25x^2$ <b>A</b>
<b>2</b>	$y^2 + 18y + 81$ <b>H</b>	$25x^2 + 40xy + 16y^2$ <b>P</b>	$4a^2 + 2ax + 0,25x^2$ <b>Д</b>
<b>3</b>	$y^2 - 18y + 81$ <b>У</b>	$25x^2 + 20xy + 16y^2$ <b>О</b>	$4a^2 - ax + 0,25x^2$ <b>Е</b>
<b>4</b>	$y^2 + 9y + 81$ <b>М</b>	$25x^2 - 40xy + 16y^2$ <b>Л</b>	$4a^2 + ax + 0,25x^2$ <b>Ц</b>



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

- 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



$$\sin A = \sin B = \sin C$$

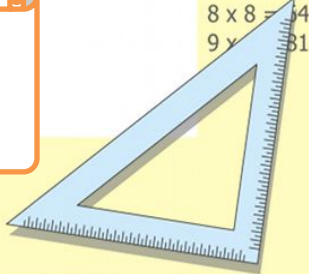
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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



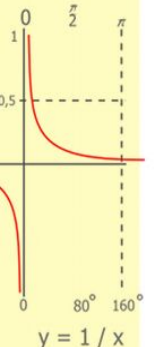
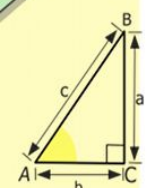
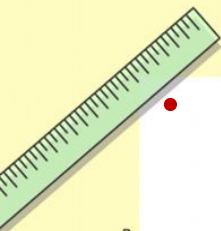
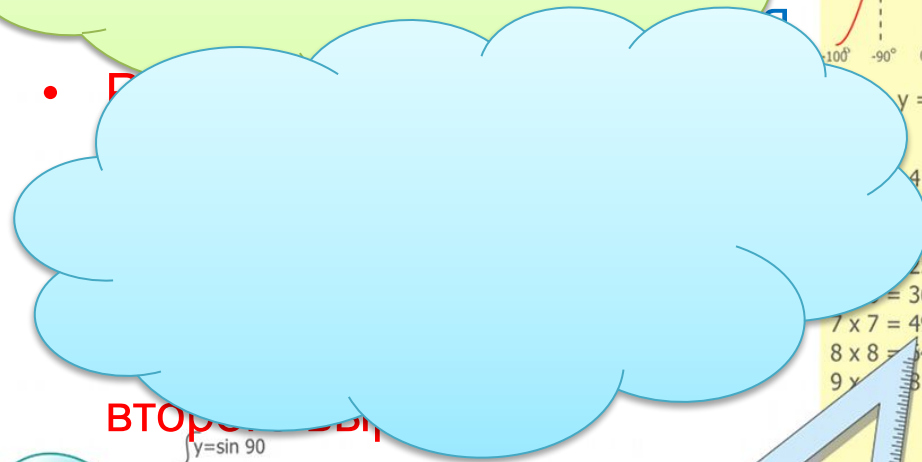
$$\begin{array}{l} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{array}$$

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





- С какими формулами мы познакомились сегодня на уроке?
- Почему эти формулы называются формулами сокращенного умножения?
- Чему равен квадрат суммы двух выражений?
- Чему равен квадрат разности двух выражений?
- Как вы думаете, зачем нужны нам эти формулы и стоит ли их запоминать?



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



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

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

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

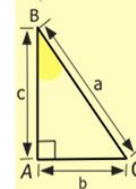
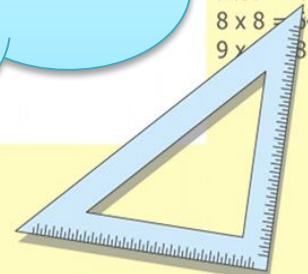


ВТОРОЙ ЗАДАНИЕ

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

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

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



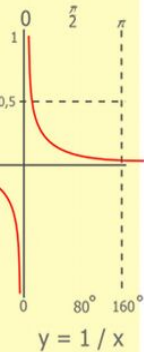
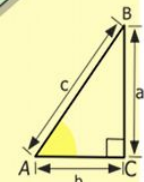
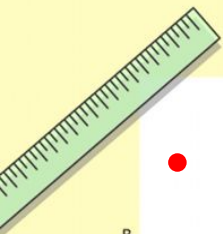
$$\begin{array}{l} 4 \\ 5 \\ 25 \\ = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$

y = co

# Домашнее задание.

- № 729- *путь подражания* преобразовать в многочлен, используя формулы квадрата суммы и квадрата разности.
- № 731 – творческое задание, заполнить пустые пропуски – *путь размышления*

- Внимание! Для любознательных!
- \* доказать геометрический смысл формулы  $(a+b)^2$  стр.189.



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



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

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

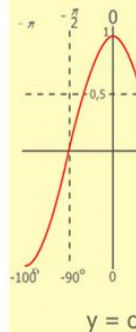
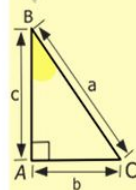
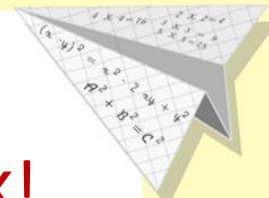
$$\sin 90^\circ = 1$$



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

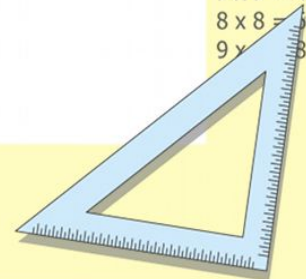
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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



$$y = \cos$$

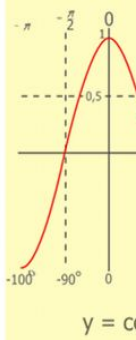
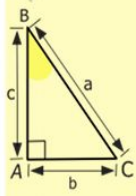
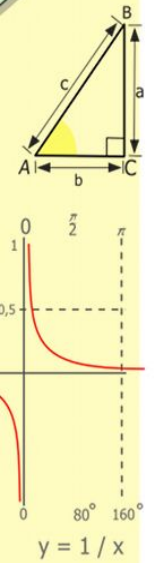
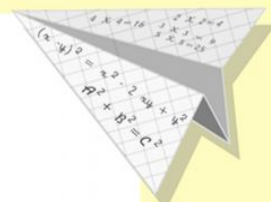
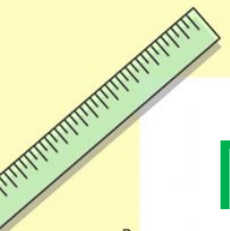
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



Путь размышления самый  
 благородный,  
 кто размышлял, получил «4» и «5»

- украсьте дерево красными  
 цветами.

Путь подражания самый  
 легкий ...кто делал по образцу- синими  
 цветами.



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

- 2 x 2 = 4
- 3 x 3 = 9
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