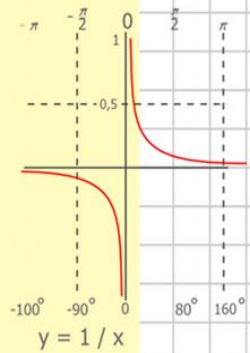
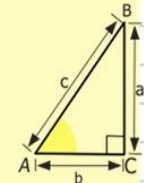
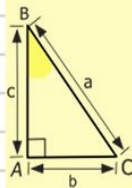
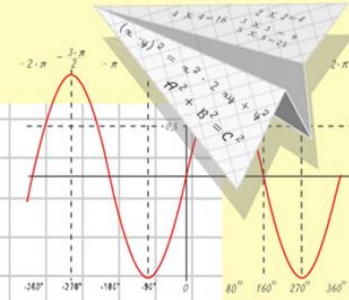
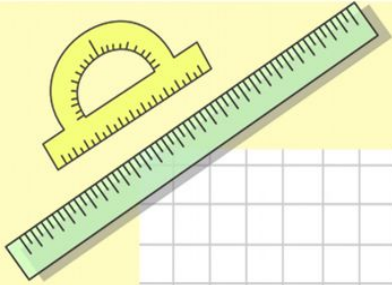


Математик

а

Четырнадцатое февраля
Классная работа

Формулы сокращенного умножения.



$y = \cos x$

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

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

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

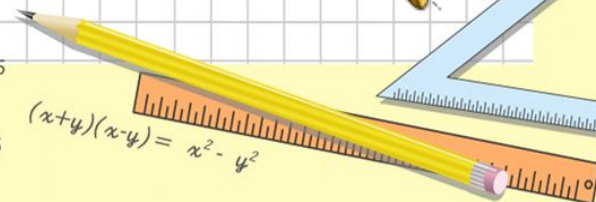
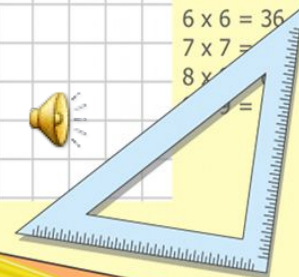
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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

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

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

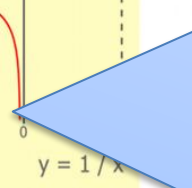
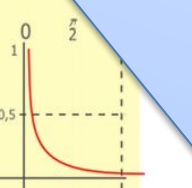
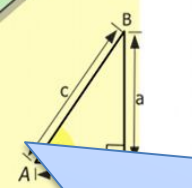
$$(x+y)(x-y) = x^2 - y^2$$



Три пути ведут к знанию:

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

Конфуций



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



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

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

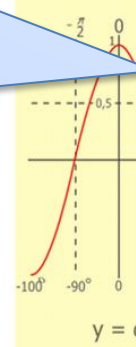
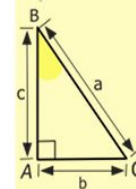
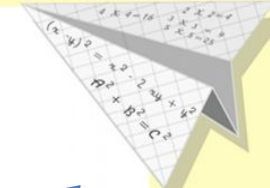
$$\sin 90^\circ = 1$$



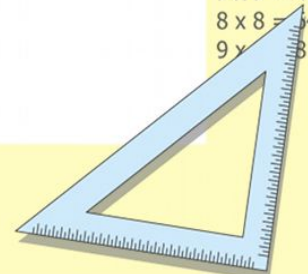
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

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



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



ВОПРОС - ОТВЕТ

• Что называют
одночленом?

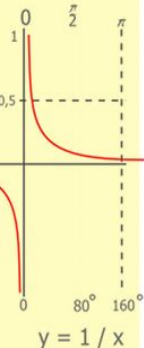
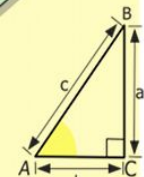
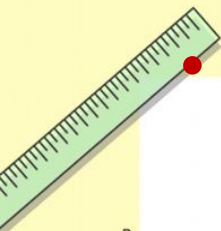
• Какие слагаемые
называются
подобными?

• 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



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



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

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

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



$$y = \sin 90$$

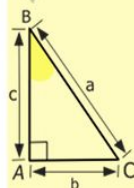
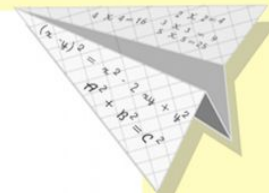
$$x = 25 + 45$$

$$y = 1$$

$$x = 25 + 45$$

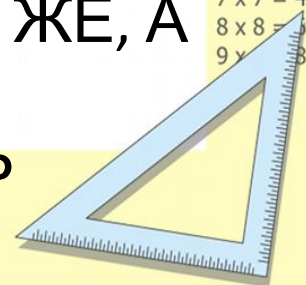
$$x = 70$$

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



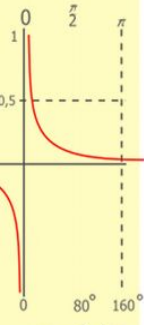
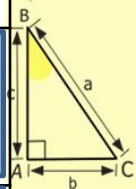
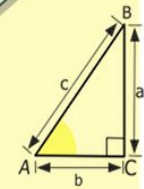
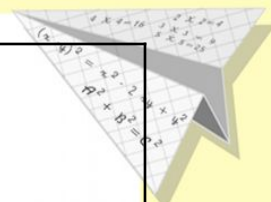
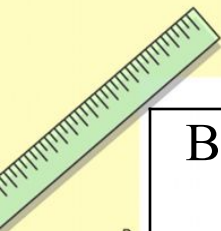
$$y = \cos$$

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



$$(a + b)^2 = a^2 + 2ab + b^2 \quad (a - b)^2 = a^2 - 2ab + b^2$$

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



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

- 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



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

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

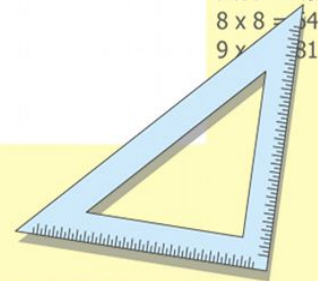
$$\sin 90^\circ = 1$$

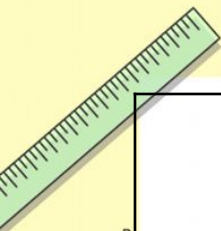


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

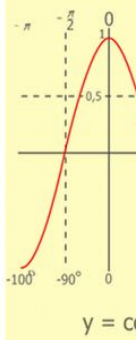
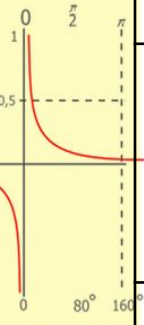
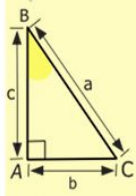
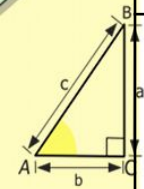
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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





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



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

- 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



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

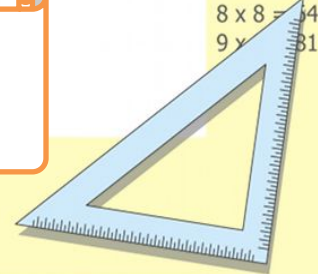
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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

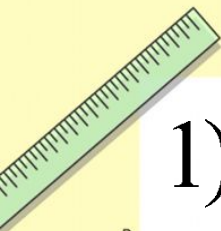


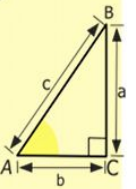
$$\begin{array}{l} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{array}$$

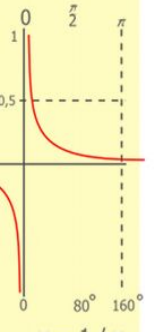
$$(x+y)(x-y) = x^2 - y^2$$



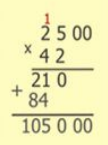
Представить в виде


$$1) (f + d)^2 =$$

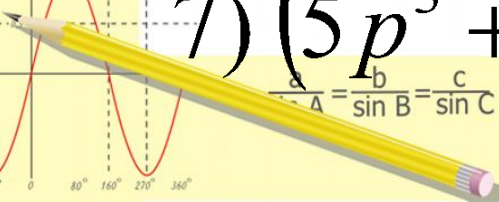
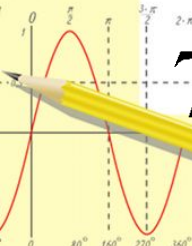

$$2) (m + 1)^2 =$$


$$3) (3k + 4)^2 =$$

$$4) (2x + 7y)^2 =$$


$$5) (c + k^2)^2 =$$

$$6) (b^2 + d^3)^2 =$$

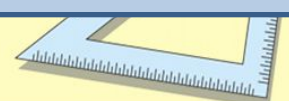

$$7) (5p^3 + 4q^4)^2 =$$

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

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

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

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



Представить в виде

1) $(s - z)^2 =$

2) $(m - 1)^2 =$

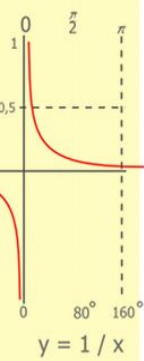
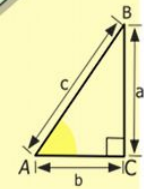
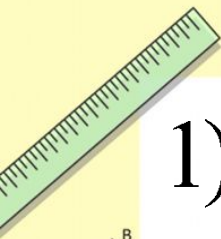
3) $(4 - 3k)^2 =$

4) $(5x - 2y)^2 =$

5) $(k^2 - p)^2 =$

6) $(t^4 - c^7)^2 =$

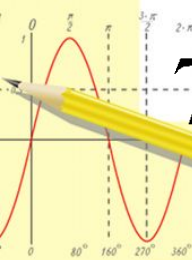
7) $(3m^6 - 4n^3)^2 =$



$\frac{1}{2} 5 00$
 $\times 42$

 210
 $+ 84$

 $105 0 00$



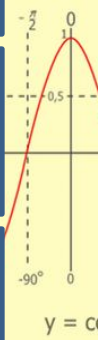
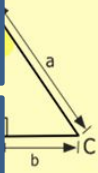
$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

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

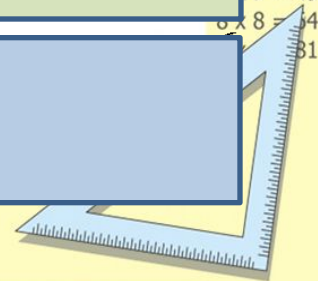
$\sin 90^\circ = 1$

$\frac{x=25+45}{x=70}$

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



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



Математик

Разность квадратов двух выражений

ОПРЕДЕЛЕНИЕ

Разность квадратов двух выражений равна произведению их суммы и разности

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

Левую и правую части можно поменять местами, тогда получаем:

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

Формула «разность квадратов» очень удобна для разложения многочленов на множители.

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

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

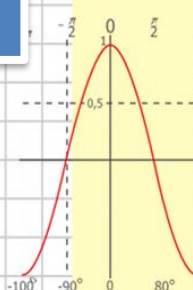
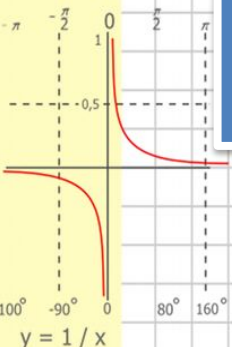
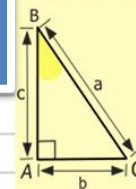
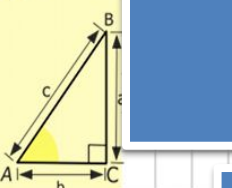
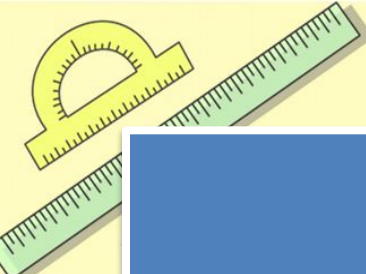
$$\sin 90^\circ = 1$$

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

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

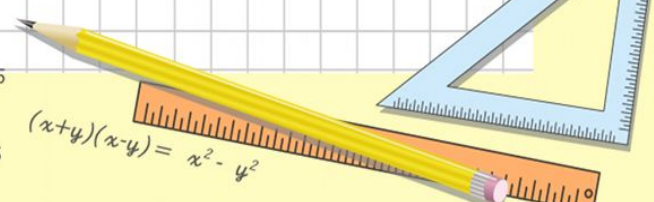
$$x = 70$$

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



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 840 \\ \hline 10500 \end{array}$$

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



Первичное закрепление нового материала

Разложи на множители:

1) $b^2 - d^2$

2) $x^2 - 1$

3) $-x^2 + 1$

4) $36 - c^2$

5) $4 - 25a^2$

6) $49a^2 - 100$

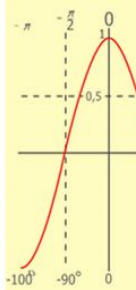
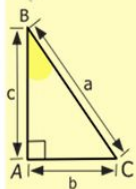
7) $900 - 81k^2$

8) $c^2p^2 - 1$

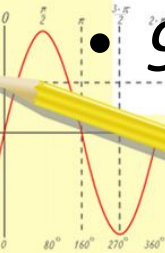
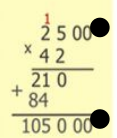
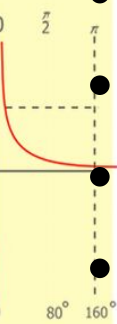
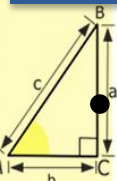
9) $16x^2 - 121y^2$

Проверяем:

- 1)
- 2)
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)



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



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

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

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

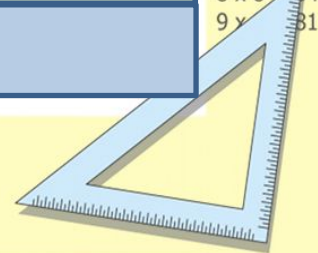


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

$$x = 70$$

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



Первичное закрепление нового материала

Разложите на множители,
пользуясь формулой
разности квадратов :

а) $(x+2)^2 - 49 =$

б) $(x-10)^2 - 25y^2 =$

в) $25 - (y-3)^2 =$

г) $(a-4)^2 - (a+2)^2 =$

д) $(8y+4)^2 - (4y-3)^2 =$

Проверяем :

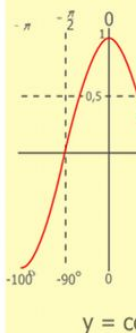
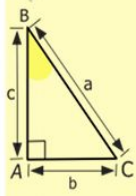
а) $(x+9)(x-5)$

б) $(x-10+5y)(x-10-5y)$

в) $(8-y)(2+y)$

г) $-6(2a-2)$

д) $(12y+1)(4y+7)$



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

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

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

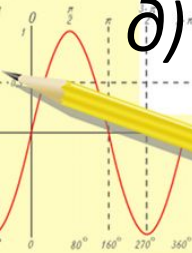
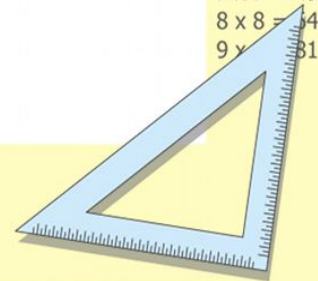
$$\sin 90^\circ = 1$$



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

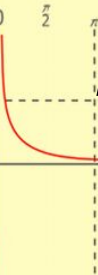
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 2100 \\ + 8400 \\ \hline 105000 \end{array}$$

$$y = 1/x$$



Выполните умножение многочленов, используя формулу разности квадратов:

а) $(x+2)(x-2)$

Проверяем :

а) $x^2 - 4$

б) $(y+3)(y-3)$

б) $y^2 - 9$

в) $(2x-3y)(2x+3y)$

в) $4x^2 - 9y^2$

г) $(3a-5b)(3a+5b)$

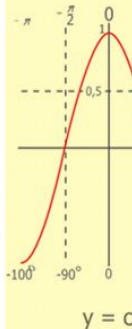
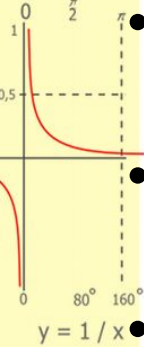
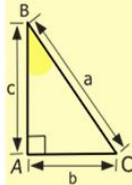
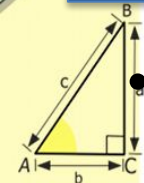
г) $9a^2 - 25b^2$

д) $(a^2-5)(5+a^2)$

д) $a^4 - 25$

е) $(b^2+4)(4-b^2)$

е) $16 - b^4$



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

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

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

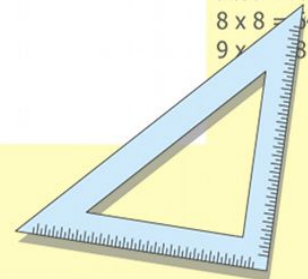
$$\sin 90^\circ = 1$$



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

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

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

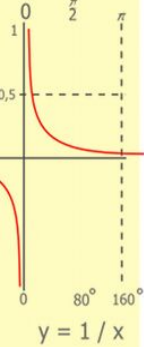
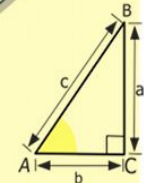
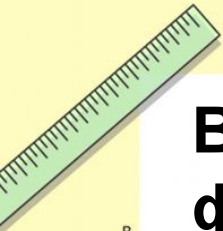


Домашнее задание

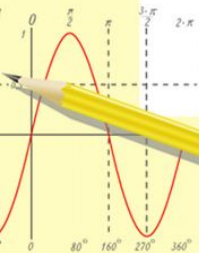
Выполните умножение многочленов, используя формулу разности квадратов:

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

- а) $(x+2)(x-2)$
- б) $(y+3)(y-3)$
- в) $(2x-3y)(2x+3y)$
- г) $(3a-5b)(3a+5b)$
- д) $(a^2-5)(5+a^2)$
- е) $(b^2+4)(4-b^2)$



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



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

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

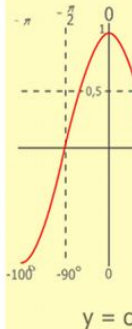
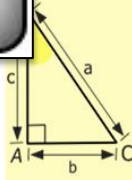
$$\sin 90^\circ = 1$$



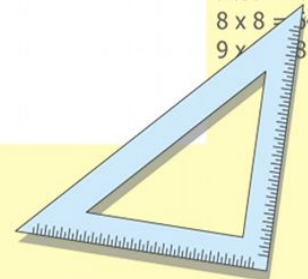
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

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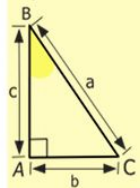
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



*Мало иметь
хороший ум,
главное –
уметь его
применять*



Рене Декарт —
(1596-1650) —
французский философ,
математик, физик и
физиолог



$y = \cos$

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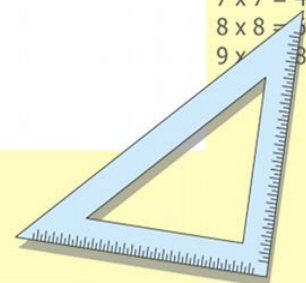
$\sin 90^\circ = 1$



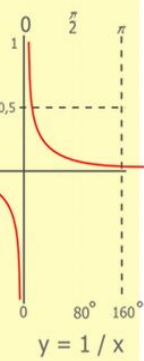
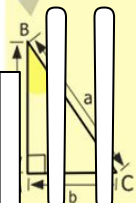
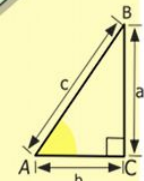
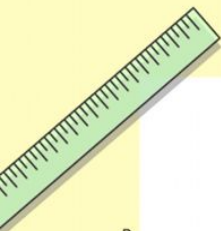
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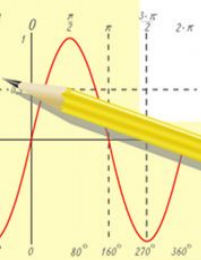


Спасибо, вы молодцы!!!



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

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