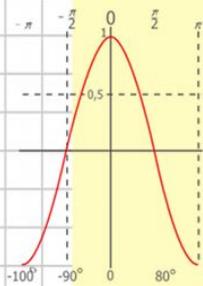
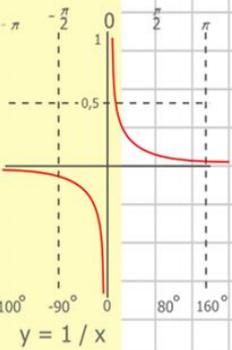
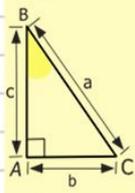
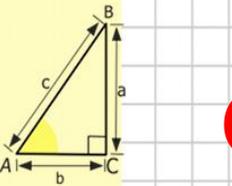
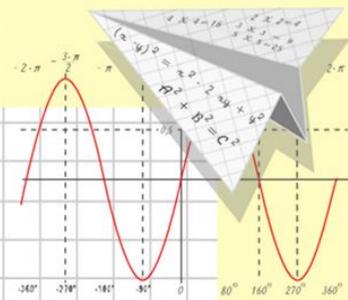
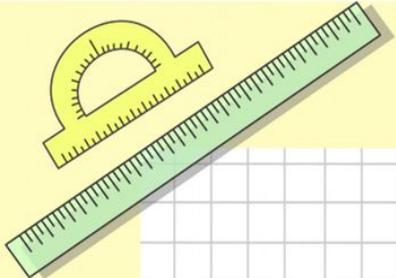


Математик

а

ПРОПОРЦИИ И 6 класс МАТЕМАТИКА



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

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

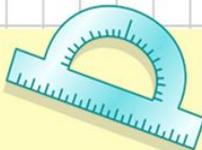


$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

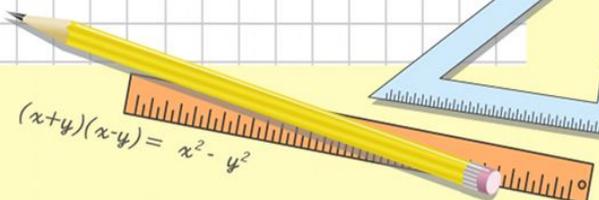
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$



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

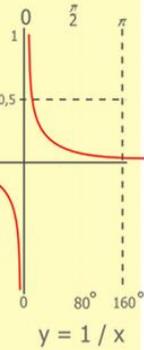
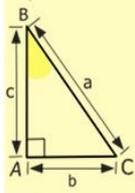
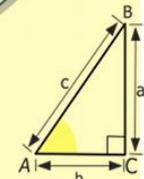
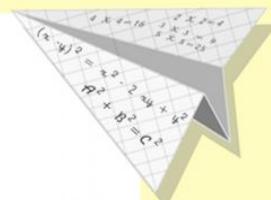
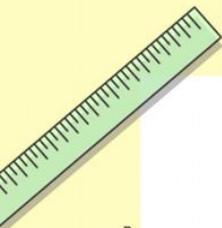


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$



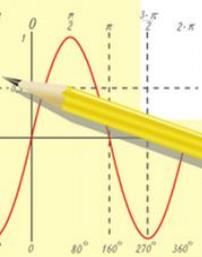
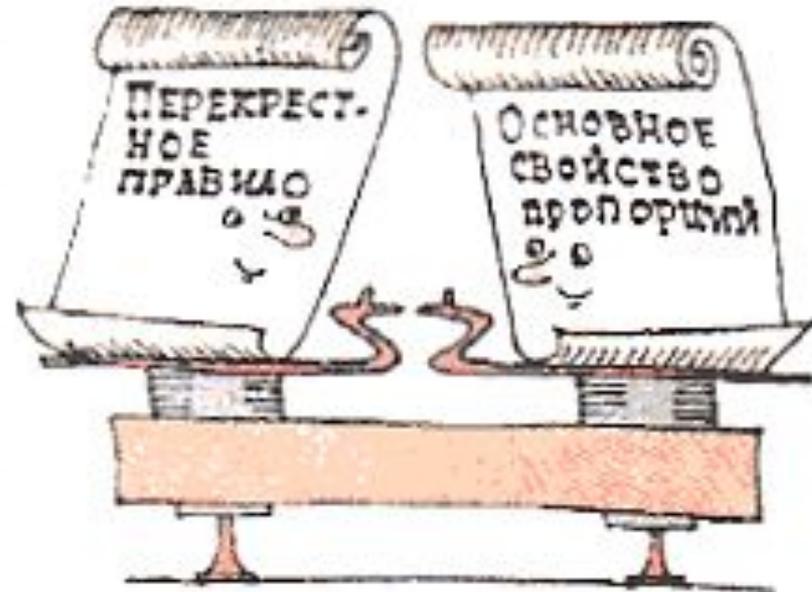
$$(x+y)(x-y) = x^2 - y^2$$

ОСНОВНОЕ СВОЙСТВО ПРОПОРЦИИ ИЛИ ПЕРЕКРЕСТНОЕ ПРАВИЛО



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

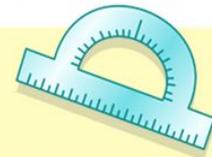
- 2 x 2 = 4
- 3 x 3 = 9
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$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

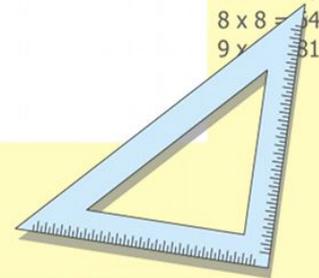
$$\sin 90^\circ = 1$$

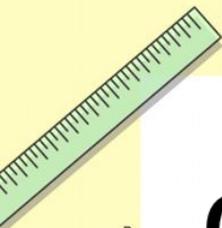


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

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

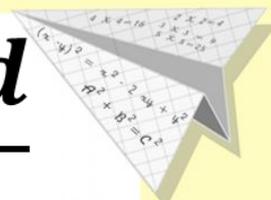




$$a = \frac{bc}{d}$$

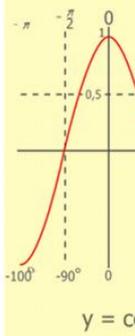
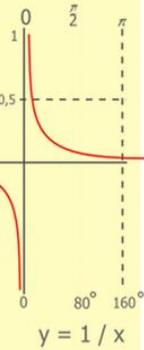
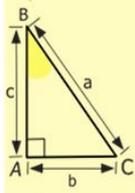
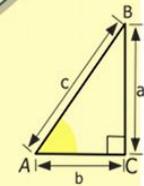


$$b = \frac{ad}{c}$$



$$d = \frac{bc}{a}$$

$$c = \frac{ad}{b}$$



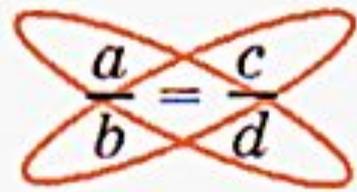
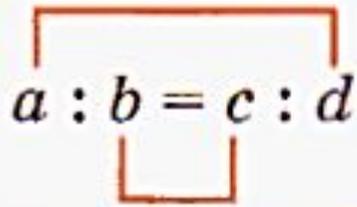
$$\begin{array}{r} 1 \\ \times 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

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

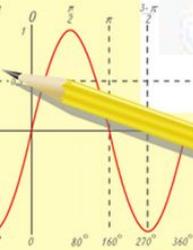
крайние члены

крайние
члены

средние
члены



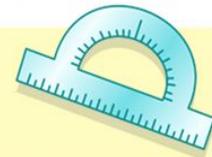
средние члены



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

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

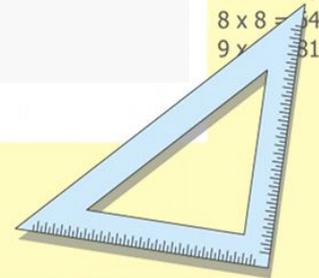
$$\sin 90^\circ = 1$$



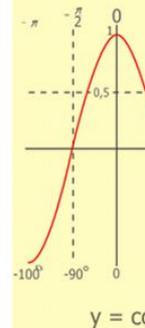
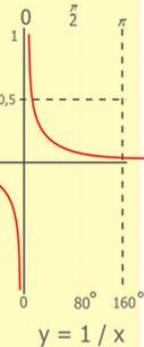
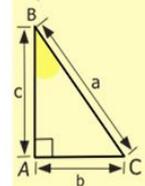
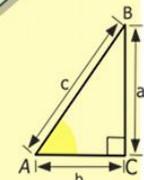
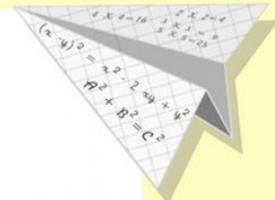
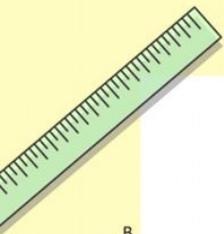
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

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



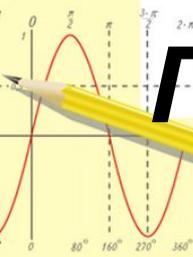
туренажёр



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

**РЕШАЕМ УРАВНЕНИЯ
-РЕШАЕМ
ПРОПОРЦИЮ**

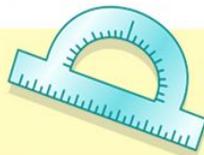
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



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

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

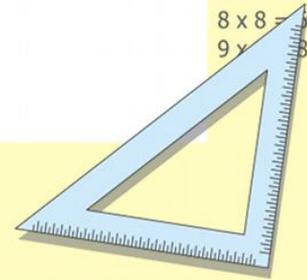
$$\sin 90^\circ = 1$$



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

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

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



Реши уравнения:

$$\frac{a}{1,8} = \frac{5}{3}$$

3

$$\frac{2,5}{3\frac{1}{3}} = \frac{3c}{0,4}$$

0,1

$$\frac{x+1}{7,2} = \frac{x}{4}$$

1,25

$$\frac{12y-9}{2y} = \frac{0,5}{1\frac{1}{3}}$$

$\frac{10}{13}$

$$\frac{x}{6,3} = \frac{1}{2,8}$$

$\frac{1}{4}$

$$\frac{1\frac{1}{3}}{2\frac{5}{6}} = \frac{2}{0,25x}$$

1

$$\frac{6,125}{4x} = \frac{0,35}{\frac{2}{7}}$$

$\frac{5}{4} = 1,25$

$$\frac{2\frac{1}{4}}{1,6} = \frac{0,125x}{2\frac{2}{3}}$$

30

$$\frac{x}{0,3} = \frac{2}{0,01}$$

60

$$\frac{1\frac{1}{7}}{8x} = \frac{5}{4\frac{2}{3}}$$

$\frac{8}{5} = 1,6$

$$\frac{x-3,8}{3x} = \frac{0,4}{5}$$

5

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

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

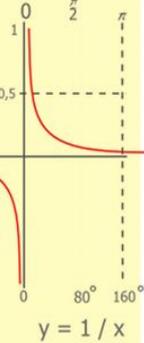
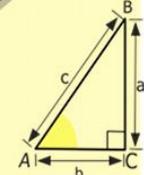
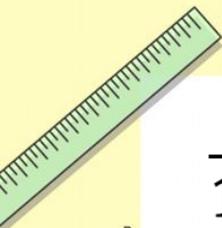
$$\sin 90^\circ = 1$$

$$x = 25y + 45$$

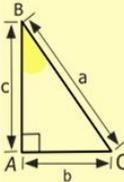
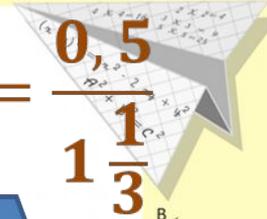
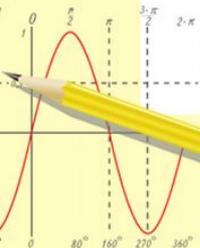
$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

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

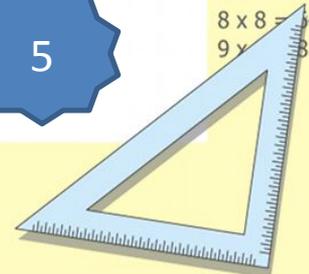
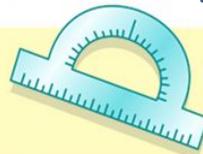


$$\begin{array}{r} \frac{1}{2} 500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$



$$y = \cos$$

- 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



Реши уравнения:

20,4

1

4,05

$$\frac{40}{7} = 5\frac{5}{7}$$

$$\frac{20}{9} = 2\frac{2}{9}$$

1,1

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

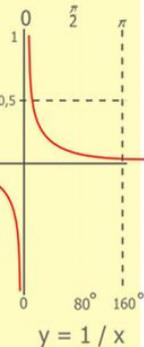
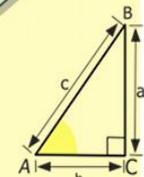
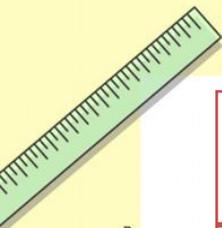
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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

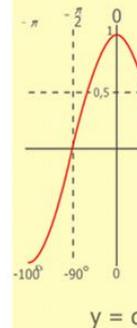
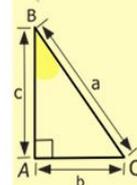
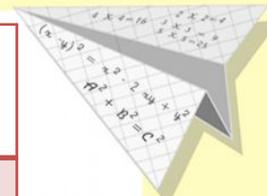
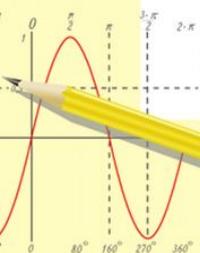
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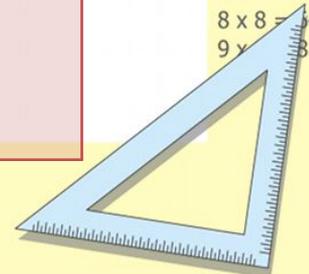
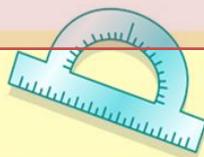
$$(x+y)(x-y) = x^2 - y^2$$

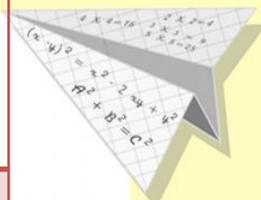
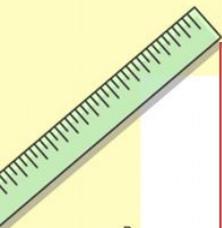


$$\begin{array}{r} \frac{1}{2} 500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

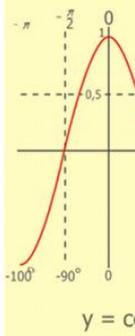
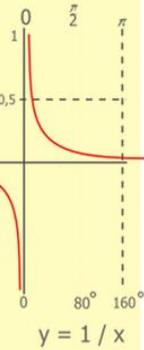
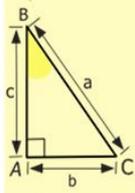
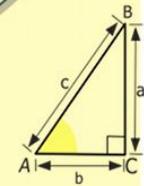


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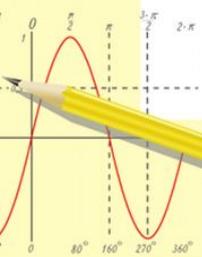


16	
100	
9	
1,6	
64	
3,6	



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

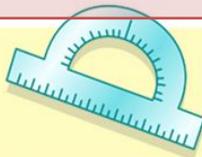
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$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

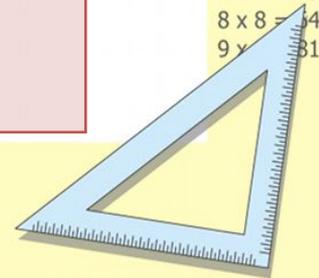
$$\sin 90^\circ = 1$$



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

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

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



• ПРЯМАЯ И ОБРАТНАЯ

ПРЯМАЯ
 Две величины называются **прямо пропорциональными**, если при увеличении одной из них в несколько раз другая увеличивается во столько же раз.

$$\frac{t_2}{t_1} = \frac{S_2}{S_1}$$

ОБРАТНАЯ
 Две величины называются **обратно пропорциональными**, если при увеличении одной из них в несколько раз другая уменьшается во столько же раз.

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

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

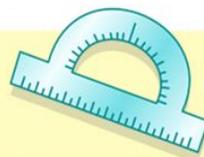
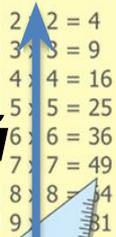
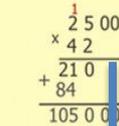
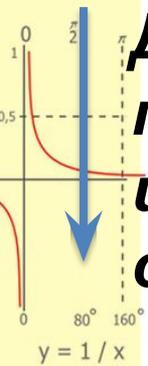
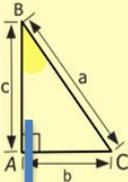
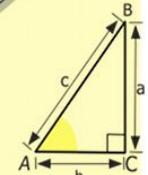
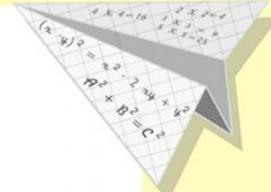
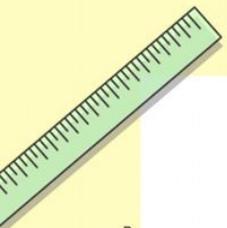
$$\sin 90^\circ = 1$$

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

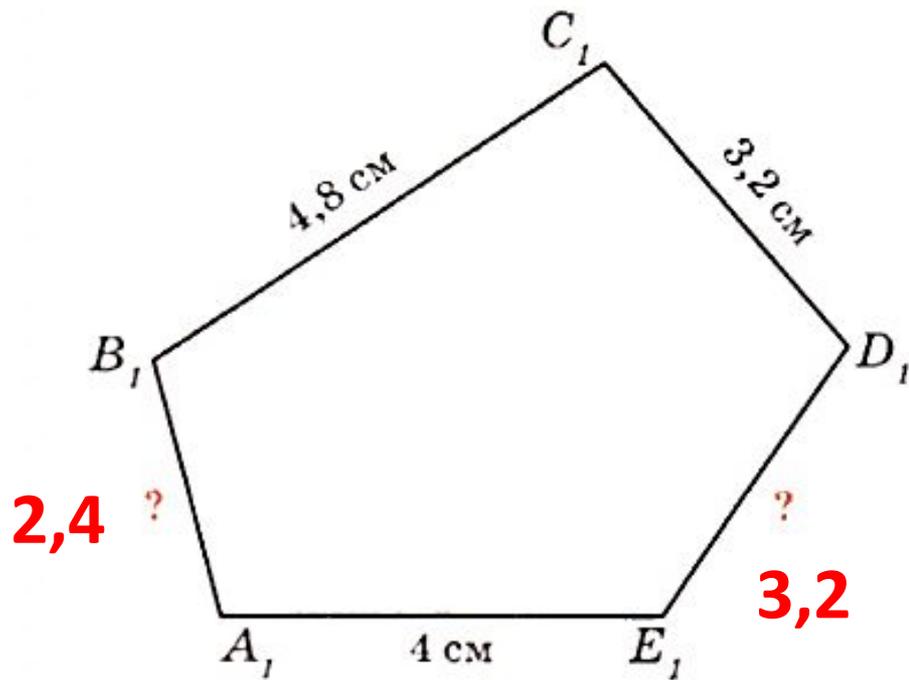
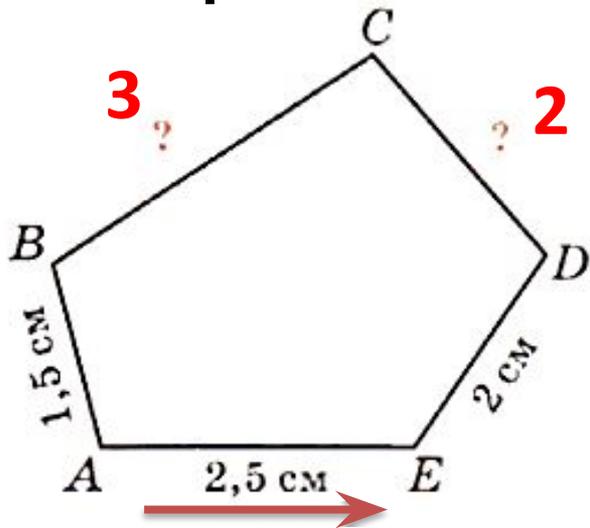
$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

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



На рисунке показаны размеры фигуры и её копии, увеличенной с помощью копировальной машины. Надо найти ответы на вопросы.



$$\frac{2,5}{4} = \frac{2}{E_1D_1} = \frac{1,5}{A_1B_1} = \frac{CD}{3,2} = \frac{BC}{4,8}$$

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

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

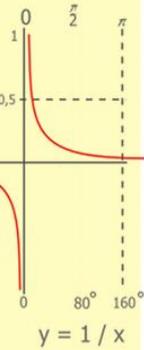
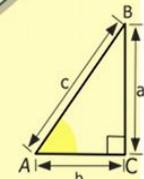
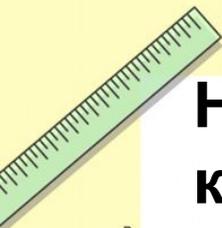
$$\sin 90^\circ = 1$$

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

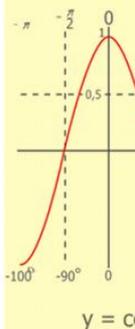
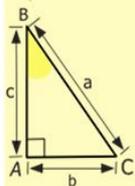
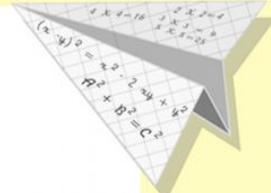
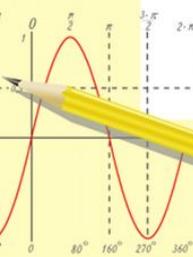
$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

$$x = 70$$

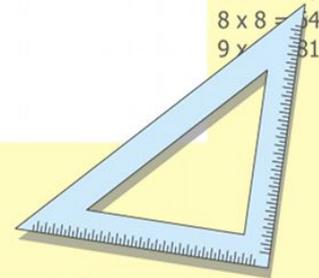
$$(x+y)(x-y) = x^2 - y^2$$



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



- 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



Реши задачи на проценты способом

пропорций

1) Сколько серной кислоты в растворе массой 75 г, если концентрация раствора составляет 12%?

2) В 80 т железной руды после её обогащения содержится 76 т железа. Какой процент железа в обогащенной руде?

3) Вкладчик положил деньги в банк под 6% годовых и получил через год доход 81 р. Какая сумма была положена в банк?

Весь раствор 100%-75 г

Серная кислота 12%-x

Железная руда 100%-80т

Железо x %-76т

Доход 6%-81р

Сумма 100% x р



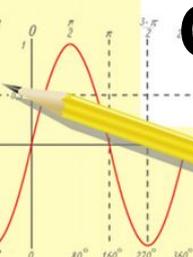
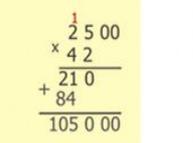
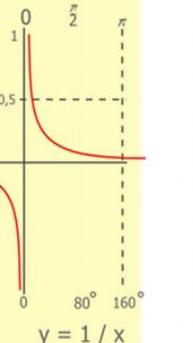
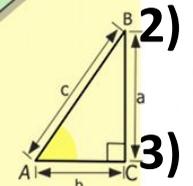
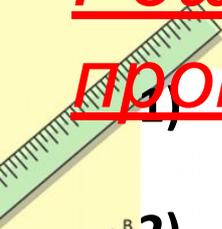
9г



95%



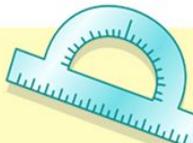
1350р



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

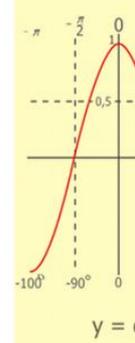
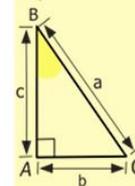
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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

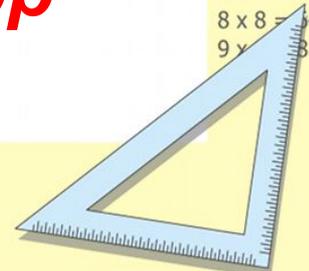


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ x = 70 \end{cases}$$

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



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1) Принтер распечатывает 27 страниц за 4,5 минуты. За сколько времени он распечатает с той же скоростью 300 страниц?

2) В коробке 48 пачек чая по 250 г в каждой. Сколько получится из этого чая пачек по 150 г?

3) Автомобиль проехал 310 км, истратив 25л бензина. Какое расстояние может проехать автомобиль на полном баке, вмещающем 40л, если расход бензина на 1 км останется прежним?

4) На первой из двух сцепляющихся шестерен 32 зубца, а на второй 40. Сколько оборотов сделает вторая шестерня, в то время как первая сделает 215 оборотов?

4,5 мин = 270 секунд

270 с – 27 страниц

x с – 300 страниц

310 км – 25 л

x км – 40 л

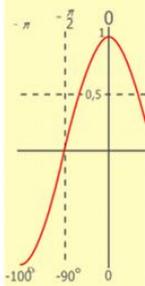
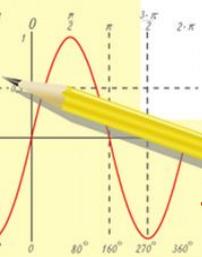
48 пачек – 250 г

x пачек – 150 г

32 зубца – 215 оборотов

40 зубцов – x оборотов

$$\begin{array}{r} 4,500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$



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

$$y = 25x + 45$$

$$x = 25 + 45$$

$$x = 70$$

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

Использованы задачи из учебников математики:

1. Г.В. Дорофеев, Л.Г. Петерсон

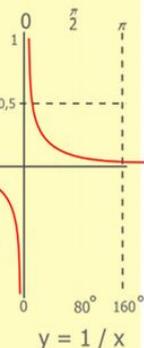
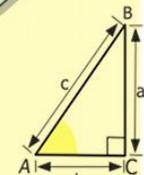
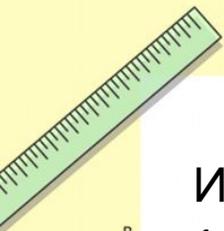
Математика 6 класс часть 2 – издательство ЮВЕНТА 2010г

2. Н.Я. Виленкин, В.И. Жохов, А.С. Чесноков, С.И. Шварцбурд

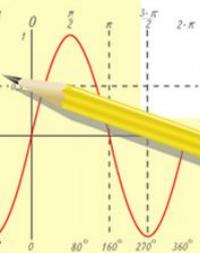
Математика 6 класс – издательство Мнемозина 2013г

3. А.Г. Мерзляк, В.Б. Полонский, М.С. Якир

Математика 6 класс – издательство Вентана-Граф 2014г



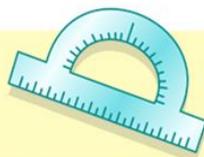
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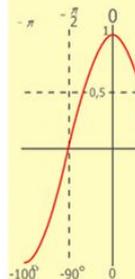
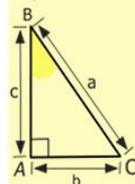
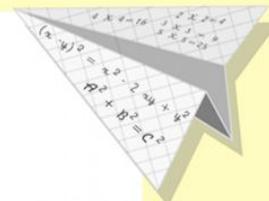
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