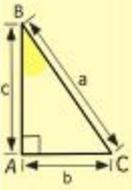
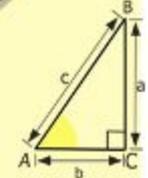
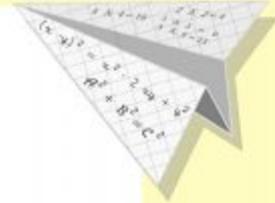
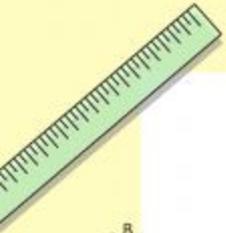
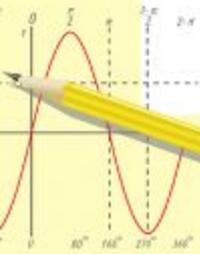


# Понятие о процентах



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

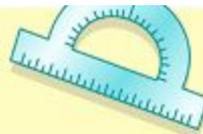
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



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

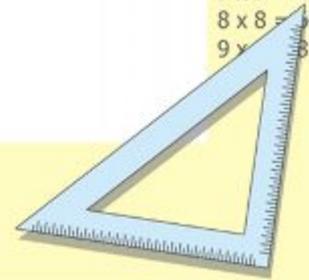
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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



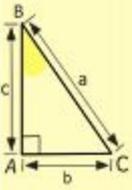
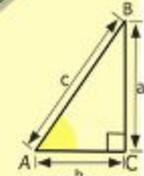
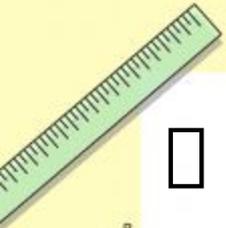
$$\begin{array}{l} x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{array}$$

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



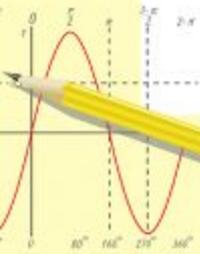
# ЗАДАЧИ УРОКА

- Познакомиться с понятием процента.
- Научиться записывать процент в виде дроби и дробь в виде процента
- научиться решать задачи с помощью процентов
- узнать где еще кроме математики используют проценты



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

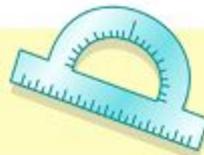
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



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

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

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

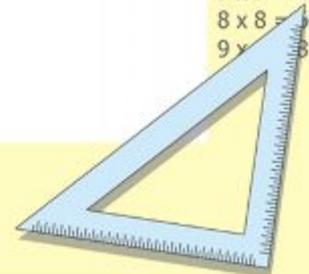


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

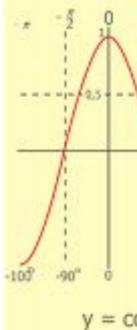
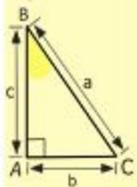
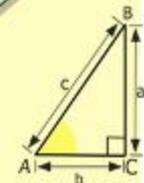
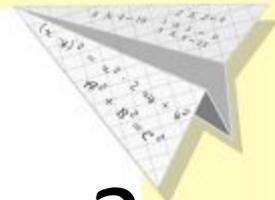
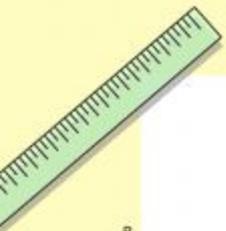
$$x = 70$$

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



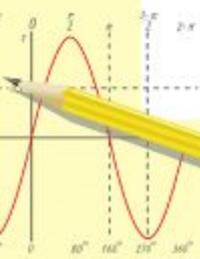
# Что называют процентом?

**Процентом называется сотая часть какого-либо числа (величины).**



$$\begin{array}{r} \frac{1}{2} 500 \\ \times 42 \\ \hline 2100 \\ + 84 \\ \hline 105000 \end{array}$$

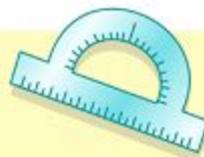
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$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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

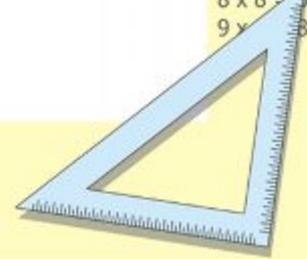


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

$$x = 70$$

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

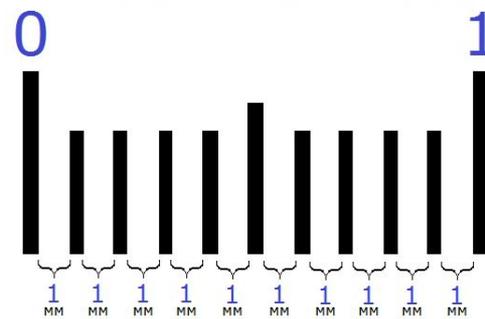




Сотая часть

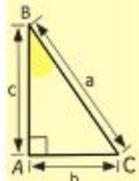
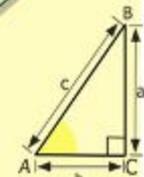
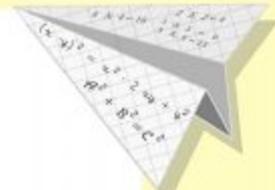
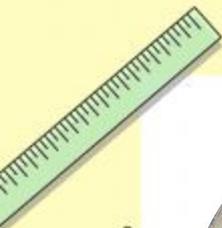


Сотая часть



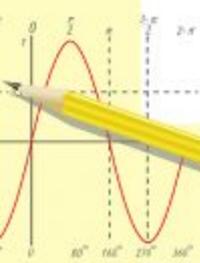
1 метр

1 см.



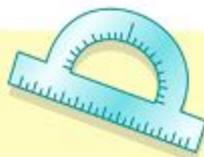
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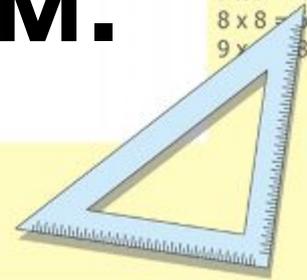
$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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



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

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

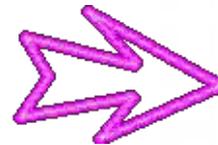
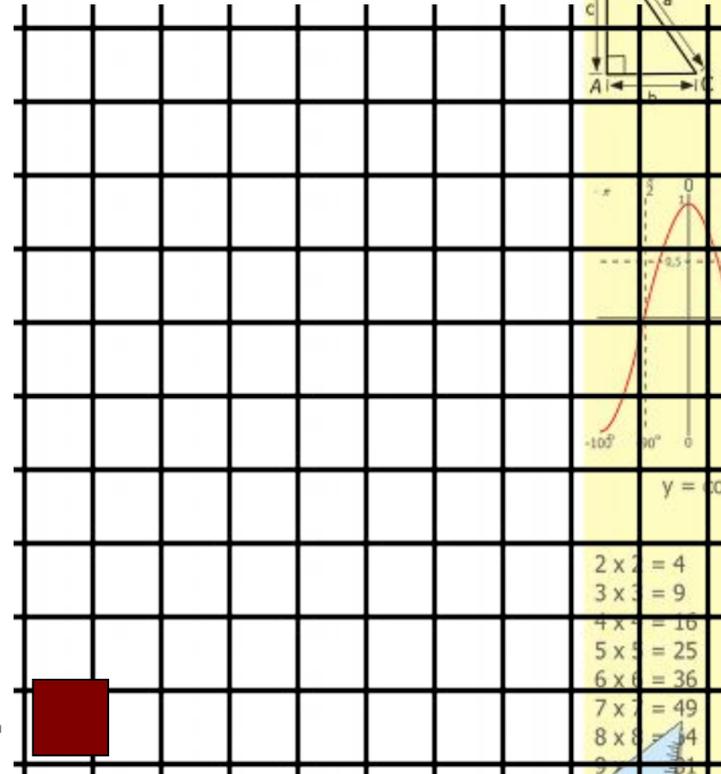


# Что такое ПРОЦЕНТ?

Сотую часть

рубля называют копеекой,  
сотую часть доллара  
называют центом,  
сотую часть метра –  
сантиметром и т.д.

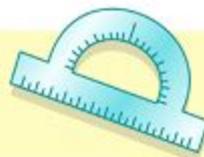
Сотая часть  
квадрата



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

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

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

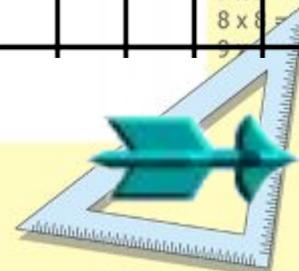


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

$$x = 70$$

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



**Определение:** сотая часть любой величины или числа называется ПРОЦЕНТОМ.

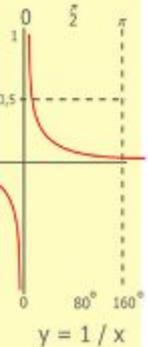
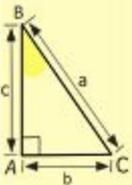
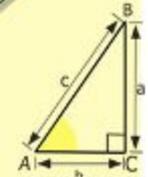
*1 копейка – один процент рубля,*

*1 см – 1 процент метра,*

*1 цент – 1 процент доллара,*

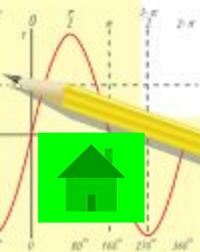
Для краткости слово «процент» после числа заменяют знаком %, то есть

$$1\% = 1:100 = \frac{1}{100}$$



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

- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
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- 6 x 6 = 36
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- 8 x 8 = 64
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$$\frac{b}{\sin B} = \frac{c}{\sin C}$$

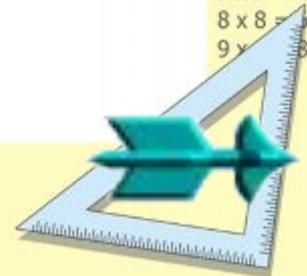
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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

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

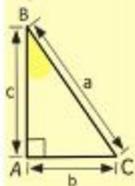
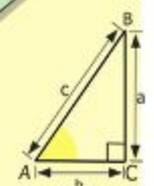
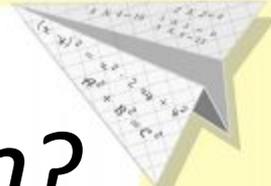
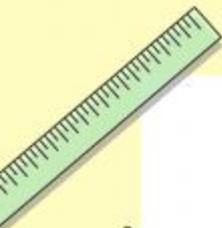
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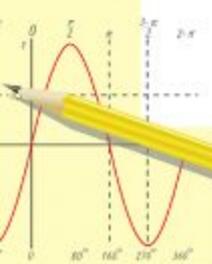
*Как обозначают процент?*

**Процент обозначается  
знаком %,  
например, 5%, 100%.**



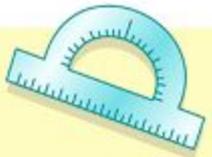
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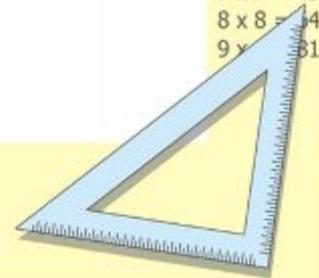
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$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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



# Правило: чтобы перевести проценты в десятичную дробь, надо число процентов разделить на 100.

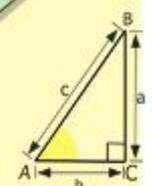
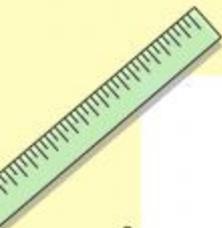
я краткости слово «процент» после исла заменяют знаком %, то есть

$$1\% = 1:100 = \frac{1}{100}$$

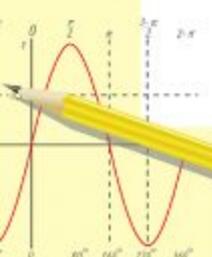
я краткости слово «процент» после исла заменяют знаком %, то есть

$$1\% = 1:100 = \frac{1}{100}$$

$$59\% = \frac{59}{100} \quad 116\% = \frac{116}{100}$$



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



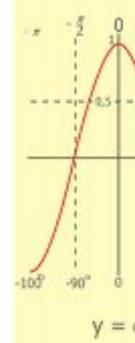
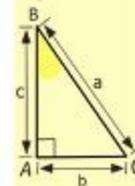
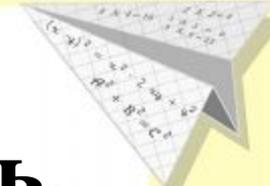
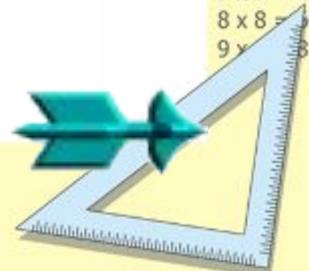
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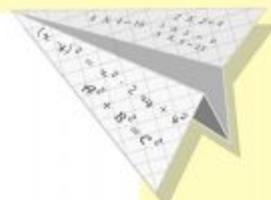
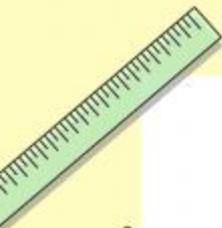


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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Для краткости слово «процент»  
числа заменяют знаком %, то есть

**47%**

$$1\% = 1:100 = \frac{1}{100}$$

Для краткости слово «процент»  
числа заменяют знаком %, то есть

**93%**

$$1\% = 1:100 = \frac{1}{100}$$

Для краткости слово «процент»  
числа заменяют знаком %, то есть

**3=**

**300%**

$$1\% = 1:100 = \frac{1}{100}$$

краткости слово «процент» по  
сла заменяют знаком %, то есть

**115%**

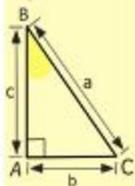
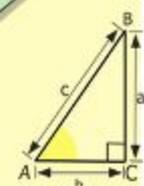
$$1\% = 1:100 = \frac{1}{100}$$

Для краткости слово «процент»  
числа заменяют знаком %, то есть

**50%**

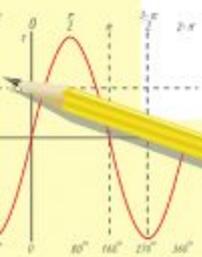
$$1\% = 1:100 = \frac{1}{100}$$

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

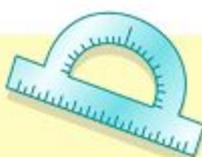
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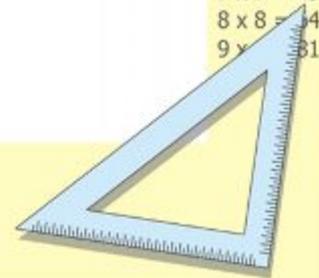
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$$(x+y)(x-y) = x^2 - y^2$$

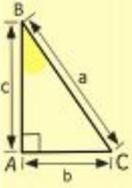
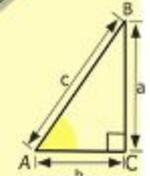
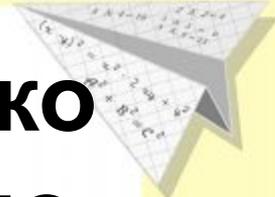
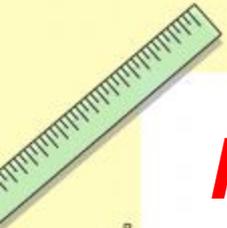


# Как найти несколько процентов числа

**Правило:** Чтобы найти несколько процентов числа нужно проценты разделить на 100 и умножить на это число.

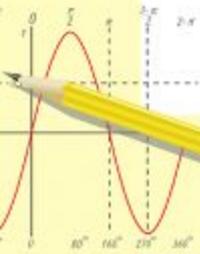
Найти  $P\%$  от  $A$  – это  
 $P/100 \cdot A$ ,

например  $2\%$  от  $300$  – это  $2/100 \cdot 300 = 6$ .



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

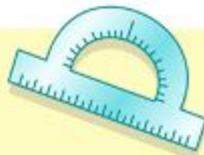
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
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$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

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

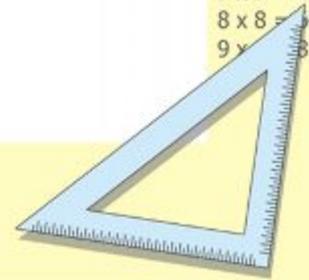


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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

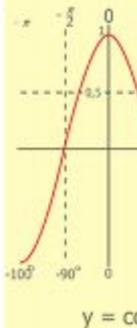
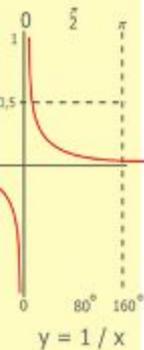
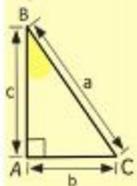
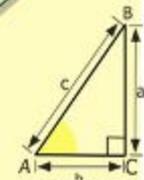
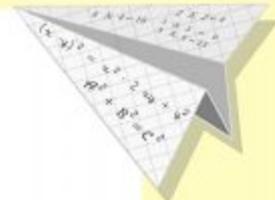
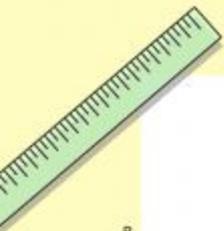
$$x = 70$$

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



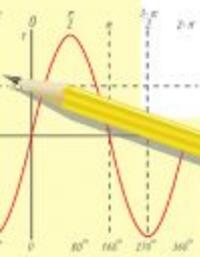
*Как обратить дробь в проценты?*

**Чтобы записать дробь в виде процентов, надо умножить ее на 100%.**



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

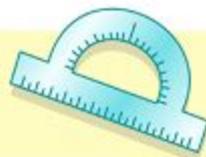
- 2 x 2 = 4
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- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



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

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

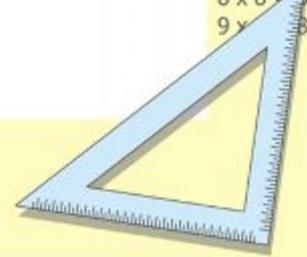
$$\sin 90^\circ = 1$$



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

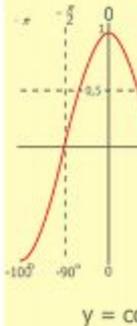
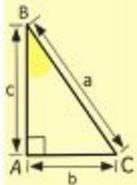
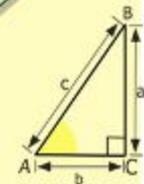
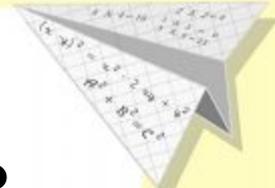
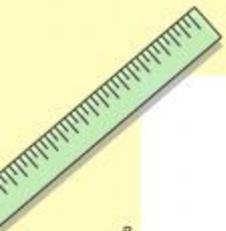
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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



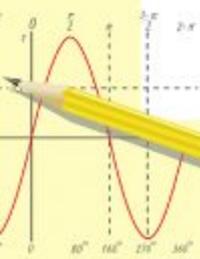
# Как перевести проценты в дробь?

Чтобы количество процентов записать в виде дроби надо это число разделить на 100



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

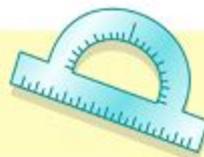
- $2 \times 2 = 4$
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- $8 \times 8 = 64$
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$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

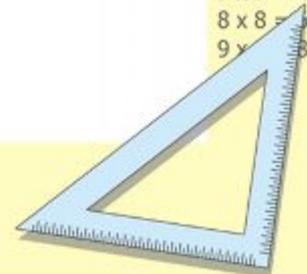
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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



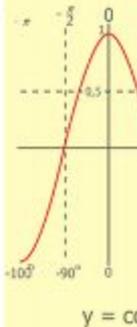
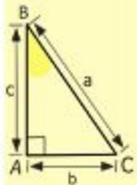
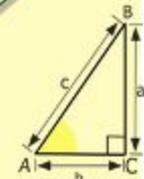
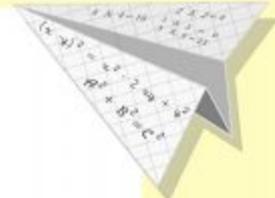
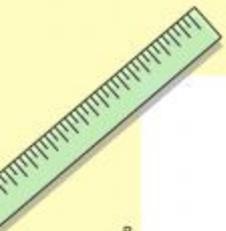
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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



# ПАМЯТКА

- Процентом называется сотая часть какого-либо числа (величины).
- Процент обозначается знаком %, например, 5%, 100%.
- Найти  $P\%$  от  $A$  – это  $P/100 \cdot A$ , например 2% от 300 – это  $2/100 \cdot 300 = 6$ .
- Чтобы записать дробь в виде процентов, надо умножить ее на 100%.
- Чтобы количество процентов записать в виде дроби надо это число разделить на 100



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

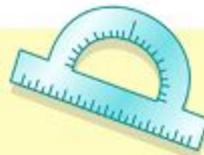
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



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

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

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

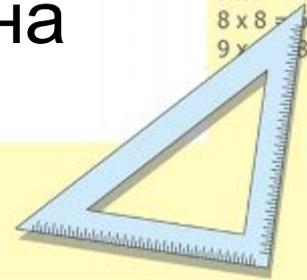


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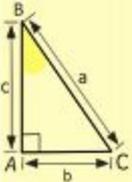
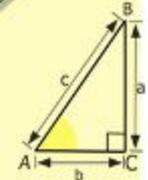
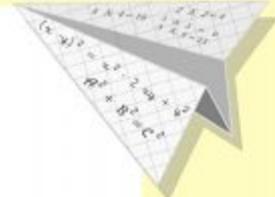
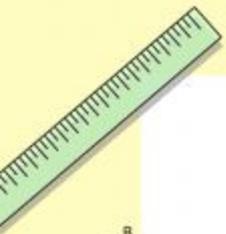


# Виды задач на проценты

Нахождение % от числа

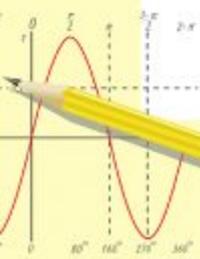
Нахождение числа по его %

Нахождение процентного отношения



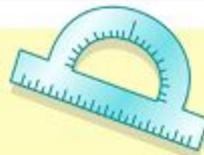
$$\begin{array}{r} \frac{1}{2} 500 \\ \times 42 \\ \hline 2100 \\ + 8400 \\ \hline 105000 \end{array}$$

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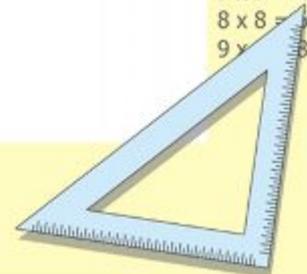
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$$(x+y)(x-y) = x^2 - y^2$$



# Нахождение % от числа

Фабрика изготовила 860 пар обуви. Из них 45% составила мужская обувь, остальная женская. Сколько пар женской обуви изготовила фабрика за год?

**1 способ:**

$$45:100 \cdot 860 = 387 \text{ (пар) мужской обуви}$$
$$860 - 387 = 473 \text{ (пары) женской обуви}$$

**2 способ:**

Всей обуви 100%, значит

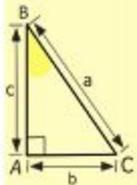
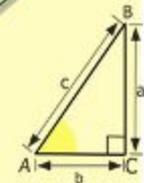
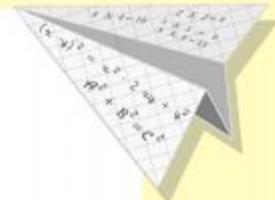
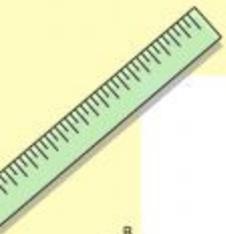
$$100\% - 45\% = 55\% \text{ женской обуви}$$
$$55:100 \cdot 860 = 473 \text{ (пары) женской обуви}$$

# Домашнее задание

параграф 1.6 (выписать и выучить определения и правила)

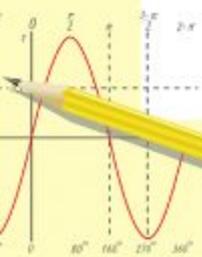
№ 95, № 96, № 101

Видеоурок: <https://youtu.be/1BiKDYRI6EE>



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

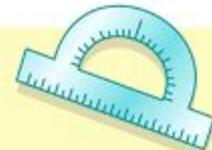
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