

Math 4. Ratio and percent. Homework

Ratio and percent.

There are two ways to compare natural numbers. We can subtract the larger number from the smaller one and we can divide one number by another. In the former case, we will find how much the first number is bigger than the second number and in the latter case we will know what part of the second number the first number is (or how many times the first number contains the second). For example: in a fourth grade, there are 80 boys and 100 girls. So, there are 20 more girls than boys ($100 - 80 = 20$), and the number of boys is $\frac{4}{5}$ of the number of girls ($80 \div 100 = \frac{80}{100} = \frac{4}{5}$), number of boys (80) contains number of girls (100) $\frac{4}{5}$ times. When we compare things using the division we also use the word *ratio*.

The ratio of two numbers indicates how many times one number is larger than another or which part of one number the other number is.

We can write the ratio of two numbers in the several ways:

1 percent of quantity is a $\frac{1}{100}$ th part of it.

a to b , $a:b$, $\frac{a}{b}$

1% of this line is shaded green: it is very small isn't it?



$$1\% \text{ of } 100 \text{ is } \frac{100}{100} \cdot 1 = 1$$

$$7\% \text{ of } 200 \text{ is } \frac{200}{100} \cdot 7 = 200 \cdot \frac{7}{100} = 200 \cdot 0.07 = 2 \cdot 7 = 14$$

By dividing 200 by 100 we can find what is 1% of 200 and we need to take 7 of this 1%.

The other way to think about it is how to find 0.07 ($\frac{7}{100}$) part of 200 by multiplying

$$200 \cdot 0.07.$$

$$120\% \text{ of } 250 \text{ is } \frac{250}{100} \cdot 120 = 250 \cdot 1.2 = 300$$

Homework:

1. Robert has 2 dogs, one weighs 9 kg and another is 3 kg. He bought a bag of dog food and wants to divide the food between dogs with the same ratio as their weights. How many kilograms of dog food each dog will get if the weight of the whole bag of food is 8 kg.



2. Find

a) 7% from 200

d) 5% from 50

b) 1% from 300

e) 25% from 48

c) 20% from 15

f) 200% from 300

3. Julia must write a 32-pages paper in 3 days. On the first day she wrote $\frac{3}{8}$ of the whole paper, on the second day she wrote $\frac{1}{4}$ of the paper. How many pages does she need to write on the third day?