

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:

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

Example: To make pancakes we use 3 cups of flour and 2 cups of milk.

So the ratio of flour to milk is **3 : 2**, which means that for each 2 cups of milk we need to have 3 cups of flour. To make pancakes for a LOT of people we might need 4 times the quantity, so we multiply the numbers by 4:

$$(3 \cdot 4) : (2 \cdot 4) = 12 : 8 \quad \left(\frac{3 \cdot 4}{2 \cdot 4} = \frac{12}{8} \right)$$

In other words, 12 cups of flour and 8 cups of milk.

The ratio is still the same, so the pancakes should be just as yummy.

1. In a dried fruit mix, there are 7 parts of dried apples, 4 parts of dried pears and 5 parts of dried apricots. What is the weight (how many grams) of apples, pears, and apricots in the fruit mix, if the total weight of the mix is 1600g?

1. Aunt Sally asked Tom Sawyer to paint $\frac{2}{5}$ of the whole fence. He asked his friend Ben Rogers to help him and Ben painted $\frac{1}{4}$ of that part of the fence. What is the length of the fence if Ben painted $2\frac{1}{2}$ m.



2. 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.



3. Find

- a) 7% from 200
- b) 1% from 300
- c) 20% from 15
- d) 120% from 250

- e) 5% from 50
- f) 25% from 48
- g) 200% from 300