

## Math 4. Class Work 20

### Ratios, ratios

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.

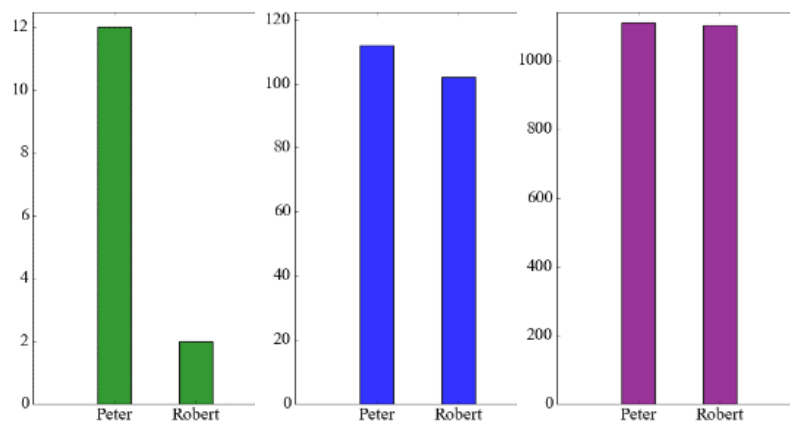
In Problem 1, the amount of money Peter and Robert have in the first case is 12 and 2 dollars, and the ratio is  $\frac{12}{2} = 6$ , or 6:1, or 6 to 1.

We can write the ratio of two numbers in the several ways: ***a to b***, ***a: b***,  $\frac{a}{b}$

### Problems

1. According to the table, Peter has 10 dollars more than Robert. Is this a big difference?

Peter	\$12	\$112	\$1112
Robert	\$2	\$102	\$1102



Take the ratios of the amounts  $\frac{\text{Peter}}{\text{Robert}} = \text{Peter} : \text{Robert} =$

2. **Lemonade** (not a real recipe). The ratio of water and lemon juice in lemonade is 4 to 1. This means that for each part of lemon juice, we need to add 4 parts of water.
- How much lemon juice and water do we need to prepare 1 L ( liter) of lemonade?
  - We want to have sweet lemonade, and we add sugar. The ratio of water, lemon juice, and sugar is 4:1:0.5 (or it can be rephrased as 8:2:1). For each part of sugar, we will use two parts of lemon juice and 8 parts of water.
  - How much water, lemon juice, and sugar do we need to prepare 1.5 L of lemonade?
3. **Pancake mix**. To make pancakes, we use 3 cups of flour and 2 cups of milk.
- What is the ratio of flour to milk? What does it mean?
  - To make pancakes for a large family, we might need 4 times the quantity. How many cups of milk and flour do we need?

4. **Splitting candy.** Three brothers, 5, 7, and 9 years old, went to trick-or-treat. They got 84 sweets altogether. They decided to divide the candies in the ratio of their age, 9:7:5. How many candies should each of them get?

**Hint:** To divide all candies between the brothers, we need to find the “unit” part of the total amount of candies. The oldest brother should get 9 of such units, the middle one should get 7, and the youngest brother will get 5. The total amount of units is  $9 + 7 + 5 = 21$ . The number of candies is 84, so the “unit” contains  $84 : 21 = 4$  candies.

5. Draw the segment  $[AB]$  6cm. Mark the point C in such a way that the ratio of the length of the segments are

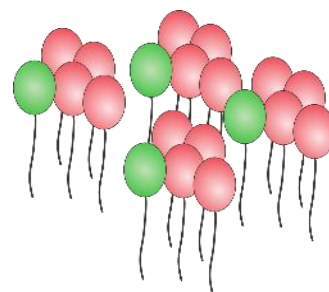
a.  $\frac{|AC|}{|BC|} = 1$ ,      b.  $\frac{|AC|}{|BC|} < 1$ ;      c.  $\frac{|AC|}{|BC|} > 1$ ;      d.  $\frac{|AC|}{|BC|} = 2$

First, we need to draw a segment 6 cm long. Use a ruler!



6. **Balloons.** The ratio of the green balloons to the red balloons is  $\frac{1}{4}$  (1 to 4), or there are four red balloons for each green balloon. The number of green balloons is a quarter of the number of red balloons. (Or, the number of RB is 4 times greater than the number of GB).

$$\frac{1}{4} = \frac{4}{16}$$



There are 1165 red and green balloons in the store. How many green and red balloons are in the store? **Hint:** how many groups of 5 balloons are there?

7. To prepare a homemade dried fruits and nuts mix, Mary took 6 parts of raisins, 5 parts of dried cranberries, and 3 parts of walnuts. Cranberries and walnuts altogether weighted 2 kg 400 g. What was the weight of the mix that Mary prepared?

**On your own:**

8. The ratio of cashews and walnuts in a nut mixture is 2:3, and the total weight of the mixture is 150g. How much cashews and walnuts are in the pack of mixture?
9. The ratio of roses and hibiscuses in the garden is 9:11. What is the total number of flower bushes in the garden if there are 99 rose bushes?

**If time:**

10. Robert has 2 dogs; one weighs 25 kg, and another is 35 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 will each dog get if the weight of the whole bag of food is 15 kg?