Algebra and Geometry 1. Homework 16.

1. Parliament elections were held on Fruit Island. Everyone who voted for the Tangerine party love tangerines. Of those who voted for other parties, 90% do not like tangerines. How many percent of the votes did the Tangerine party got, if it is known that exactly 46% of the islanders love tangerines?

2. A few consecutive natural numbers are written on the board. Exactly 52% of them are even. How many even numbers are written on the board?

3. Peter walked the first halfway at a speed of 4 km / h, and the second halfway at a speed of 6 km / h. John walked the first half of the time at a speed of 4 km / h, and the second half of the time at a speed of 6 km / h. What constant speed would each of them have to go in order to spend the same time on their journey?

4. Mother has an apple, a pear, a banana, a kiwi and a peach. Each day she gives one fruit to her kid for lunch. How many different orders are there to give these fruits during the school week?

5. Mother has 2 apples and 3 pears. Each day she gives one fruit to her kid for lunch. How many different orders are there to give these fruits?

6. Reduce the following fractions (for valid variables values):

    Example:

    $$\frac{8z^2 - 24zd}{4zd^2 - 12d^3} = \frac{8z(z - 3d)}{4d^2(z - 3d)} = \frac{2z}{d^2}; \quad d \neq 0, \quad z \neq 3d$$

    a. $\dfrac{2ab - 8a}{3ab - 12a};$
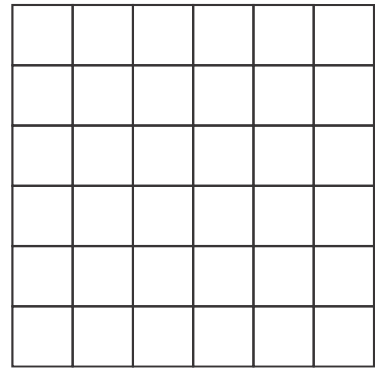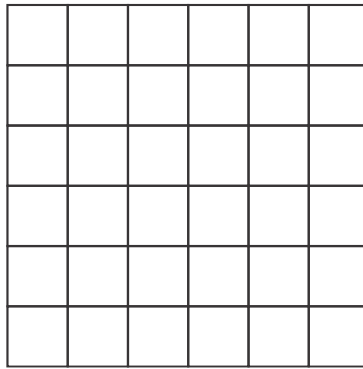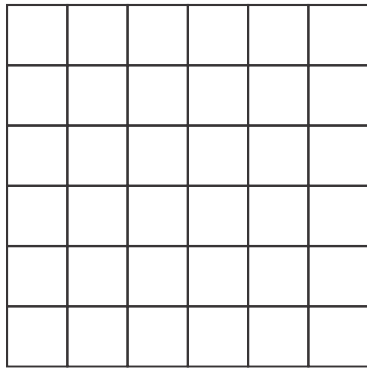
    b. $\dfrac{5mn - 2np}{25m - 10c};$

    c. $\dfrac{8z^2 - 24zd}{4zd^2 - 12d^3};$

    d. $\dfrac{3p^2 - 8pq}{24pq - 9p^2};$

    e. $\dfrac{a^2 + 2ab + b^2}{7a + 7b};$

    e. $\dfrac{7a - 7b}{a^2 - 2ab + b^2};$

7. Three points are marked on a line (point M, point N and point O) so that the length of a segment |MN| = 5 cm, the length of a segment |NO| = 3 cm. What is the length of a segment |MO|?

8. Cut squares and combine the figures below (use compass).

9.