Algebra and Geometry 1. Homework 10. November 24, 2019

Algebra.

1. Dry cranberries contain 20% of water. How much water should be evaporated from 5 kg of fresh cranberries to get dry cranberries, if fresh cranberries contain 90% of water?

2. Are the following variables proportional?
   a. Speed and time of movement on a distance of 50 km.
   b. Speed and the distance traveled in 2 hours of driving.
   c. Price of the 1 notebook and the number of notebooks that can be bought with 24 dollars.
   d. Length and width of the rectangle with the area of 60 cm^2.

3. Which of the following formulas describe the direct proportionality, inverse proportionality, neither of the two?

$$Q = 1.5a; \quad g = \frac{2}{L}; \quad S = \frac{B}{2.3}; \quad hB = 12; \quad S = 5\,t^2; \quad y = 3x\text{-}2; \quad C = 3{:}\,(5d).$$

4. In a driving school, a car with an instructor and three students went to the ride. The instructor drove $\frac{2}{15}$ of the whole distance and 5 km, two students drove $\frac{1}{4}$ of the distance each, and the third students drove the remaining 105 km. What was the length of the whole itinerary?

Geometry.

5. Read the Geometry part of the classwork handout. Understand the formulas for areas of a triangle, parallelogram, and trapezoid. Be able to apply these formulas and to prove them.

6. The midline of the trapezoid is the segment connecting the midpoints of the sides of the trapezoid. Prove, that the area of the trapezoid is given by the product of its height to the midline.