Math 4a. Homework 17.

Problems marked with * are more difficult.

1. Evaluate the expression:

$$\left(\frac{(2.7-0.8)\cdot 2\frac{1}{3}}{(5.2-1.4):\frac{3}{70}}+0.125\right):2\frac{1}{2}+0.43$$

Answer is 0.5, but you need to show your solution.

2. Peter and Robert start walking at the same time. Peter's speed is 5 km/h, Robert's speed is 4 km/h. Distance between their starting points is 20 km. What will be the distance between Peter and Robert after 2 hours?

3.
   a. A school library bought 30 books, 20 or 25 dollars each. Altogether books cost $665. How many books cost 20 dollars?
   b. 3 identical books and 5 identical notebooks costs 95 dollars, but 1 same book and 2 same notebooks cost 33 dollars. How expensive are one book and one notebook?

4. Which sign $(+, -, \cdot, \div)$ should be placed instead of * to make the following equalities true statements.

$$\frac{7}{8} * 1\frac{1}{7} = 1 \qquad \frac{3}{7} * \frac{4}{7} = \frac{3}{4}$$

$$2 * 1\frac{1}{3} = \frac{2}{3} \qquad \frac{3}{10} * \frac{5}{6} = \frac{1}{4}$$

5. *A car travels *x* km in 2 hours and a bus travels *x* km in 3 hours. How much faster is a car compared to a bus?

6. Write the following expressions as a product or power:

   a. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$;
   b. $2 + 2 + 2 + 2 + 2$;
   c. $a \cdot a \cdot a$;
   d. $a + a + a$;
   e. $\underbrace{x \cdot x \cdot \ldots \cdot x}_{20\ times}$;
   f. $\underbrace{x + x + \cdots + x}_{20\ times}$;

7. Write the following expressions in a shorter way:

   Example: $7 \cdot 7 \cdot 7 \cdot 8 \cdot 8 \cdot 8 \cdot 8 \cdot 9 \cdot 9 \cdot 9 \cdot 9 \cdot 9 = 7^3 \cdot 8^4 \cdot 9^5$

   a. $2 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 7 \cdot 7$;
   b. $\underbrace{3 \cdot 3 \cdot \ldots \cdot 3}_{n\ times} \cdot \underbrace{5 \cdot 5 \cdot \ldots \cdot 5}_{m\ times}$
   c. $\underbrace{(-4) \cdot (-4) \cdot \ldots \cdot (-4)}_{k\ times} \cdot \underbrace{6 \cdot 6 \cdot \ldots \cdot 6}_{l\ times}$