Classwork 15. Test

1. Evaluate:

   a. $\dfrac{(2^3 \cdot 2^4)^6}{(2 \cdot 2^8)^4}$;

   b. $\dfrac{12^9}{9^4 \cdot 2^{16}}$;

2. Simplify:

   a. $\dfrac{(a^2)^5 b^6}{a^{11} b^5}$;

   b. $\dfrac{(x^{-3})^5 y^9}{x^{-16} y^8}$;

   c. $\left(\dfrac{9a^7 b^5}{45 a^3 b}\right)^4$

3. Represent as fraction:

   a. 0.32;   b. $0.3\overline{2}$;   c. $0.\overline{32}$;

4. Simplify the following expressions (combine like terms):

   a. $(x^2 + 4x) + (x^2 - x + 1) - (x^2 - x)$;

   b. $(a^5 + 5a^2 + 3a - a) - (a^3 - 3a^2 + a)$;

   c. $(x^2 - 3x + 2) - (-2x - 3)$;

   d. $(abc + 1) + (-1 - abc)$;

5. Expand (write without parentheses).

   a. $(x + y)(x - y)$;   b. $(a + b + 1)(a - b)$;   c. $(2a + 3b)^2$

6. During the year, the prices of strudels were increased twice by 50%, and before New Year they started being sold at half price.
   How much does one strudel cost now, if at the beginning of the year it cost 4 dollars?

7. How many grams of jam with 50 % sugar should be added to 100 g of jam with 30% sugar, to get 35% sugar jam.

8. Evaluate (Answer is 0.1).

$$\dfrac{0.6 + 2.4 \cdot \left(3 - 0.7 \cdot \frac{5}{7}\right) - 7 : 3\frac{1}{2}}{\left(5\frac{1}{4} \cdot 4 - \left(5.9 - 2.7 : \frac{9}{11}\right)\right) \cdot 2\frac{1}{2}}$$

9. Draw three arbitrary triangles, draw all three medians in one triangle, all three bisectors in the second tringle, and all three altitudes in the third.