

Algebra and Geometry 1. Homework 17.



1. Solve the following equations:

a. $3x - 5 = \frac{x + 3}{4};$

c. $\frac{2 - x}{3} = x - 3;$

b. $\frac{x - 3}{5} + \frac{x + 2}{4} = \frac{1}{2}$

d. $\frac{2x - 3}{4} + \frac{x + 2}{2} = 6 + \frac{2x - 3}{2}$

2. How many two-digit numbers can be composed from digits 1, 2, 3 without repetition of digits?

3. How many two-digit numbers can be composed from digits 1, 2, 3, if repetition is allowed?

4. How many three-digit numbers can be composed from digits 0, 1, 2, 3 if

a. repetition of digit is allowed

b. repetition of digit is not allowed?

5. Chemist has 300 ml of the solution with 0.2 g of salt per 1 ml and 200 ml of the solution with 0.5 g of salt per 1 ml. He combined both solutions together. What will be the concentration of the salt in resulting solution?

6. There are 250 g of cherry jam which has 30 % sugar in it and 300 g of cherry jam with 50 % of sugar in it. Two portions of the confiture were combine together. What is the percentage of sugar in the final product?

7. Solve the following system of equations:

a. $\begin{cases} x - 2y = 0 \\ 2x - 3y - 7 = 0 \end{cases}$

b. $\begin{cases} y - 3x = 0 \\ x - 2y + 10 = 0 \end{cases}$

8. Prove that $99 \cdot 99! + 99! = 100!$

9. The perimeter of rectangle is 52 cm, one side is 4 cm longer then another. Find the sides of the rectangle.

10. 5% of one number and 4% of another number together are 46, but 4% of the first number and 5% of the second number together are 44. Find both numbers.

11. Multiply polynomials:

a. $(x - 1)(x - 1)(x - 1);$

d. $(x - 1)(x^2 + x + 1);$

b. $(m - n)(m - n)(m + n);$

e. $(5m^2 - 3mn + n^2)(2n - m^2);$

c. $(a - b - c)(a - 1)$

f. $(a - b + c)(a - b - c);$