

Math 5b, homework 10.



1. Three salt solutions with concentrations of 10%, 15%, and 30% were mixed. The mass of the first solution is 180 g, the mass of the second solution is 2 times greater than the mass of the first, and the mass of the third solution is 100 g greater than the mass of the second. What is the concentration of the resulting mixture? (“Concentration of 10%” means that in each 100 g. of the solution there are 10 g of salt)
2. Which is greater:
 - a. 15% of 17 or 17% of 15;
 - b. 1.2% of 48 or 12% of 480;
 - c. 147% of 621 or 125% of 549;
 - d. 72% of 150 or 70% of 152;
 - e. 80% of a or 40% of $2a$;
 - f. 36% of 2.56 or 1.5% of 806?

3. Solve the equations:

a. $4\frac{3}{14} - \left(0.5x + 2\frac{1}{6}\right) : 6\frac{1}{3} = 3\frac{5}{7}$; b. $5 \cdot \left(2k - 1\frac{1}{3}\right) = 2.4k + \frac{14}{15}$

4. Solve the problems:

- a. A number when divided by 8 gives a remainder of 5. What will be the remainder when this number is divided by 4?
- b. When a number is divided by 15, the remainder is 11. What will be the remainder when this number is divided by 3?
- c. When divided by 7, one of the numbers gives a remainder of 4, and the other gives a remainder of 3. What will be the remainder when the sum of these two numbers is divided by 7?

5. Multiply and simplify if possible:

Example:

$$(a + 2) \cdot (a + 3) = a \cdot a + 3a + 2a + 3 \cdot 2 = a^2 + 5a + 6$$

a. $(a + 2)(a + 2)$; b. $(a + 1)(a + 3)$; c. $(3 + y)(y + 4 + 5)$;

6. Write the number 100 in binary and ternary systems.