Math 4e. Homework 15.

1. Simplify the following fractions:

   $a.\ \frac{5!}{7!}$; $b.\ \frac{n!}{(n-2)!}$;

2. How many three-digit numbers can be composed from digits 1, 2, 3 without repetition of digits? (all three digit in a number are different)

3. How many two-digit numbers can be composed from digits 1, 2, 3, if repetition is allowed? (number can contain same digit, for example 111, 122, 331 are possible)

4. A boy had a bag of apples. He gave 1/2 of them to his parents, 1/5 to his brother, 1/4 to his sister and the last apple he ate himself. How many apples did he originally have?

5. Three children - Linda, Richard and Bella - were fishing. Richard and Linda caught 11 fish, Bella and Richard 15, Linda and Bella 14. How many fish did all three catch together?

6. Come up with the problem about the distance between two objects, that can be solved by the formula, and solve it.
   Example: $d = 500 - 2.5(70 + 30)$
   Problem: Two cities are 500 miles apart. A bus and a car started moving toward each other. Speed of the car is 70 m/h, speed of the bus is 30 m/h. What would be the distance between them in 2.5 hours?
   $d = 500 - 2.5(70 + 30) = 500 - 2.5 \cdot 100 = 250\ miles$

   $a.\ d = 18 + (16 + 4) \cdot 3$ $b.\ d = 96 - 4 \cdot (56 - 40)$

   $c.\ d = 4 + 2 \cdot (12 - 7)$

7. Evaluate (answer is 2.5):

$$\frac{21.75 - 18\frac{3}{8}}{1.8 : 0.4 \cdot 0.3}$$

8. When natural number N is divided by 8, the remainder is 5. What will be the remainder of $(2 \cdot N)$ upon division by 8?