Math 4a. Homework 3.

1. Which numbers are represented by the figures in following problems:

1) $\bigcirc + 12 = \triangle$

$\square : \triangle = 7$

$\triangle - 5 = \hexagon$

$4 \cdot \hexagon = 100$

2) $\square : 9 = \square$

$\triangle + \square = 84$

$3 \cdot \square = 162$

$90 - \bigcirc = \triangle$

2. Compute by the most convenient way, use the distributive or/and other properties of addition/multiplication:
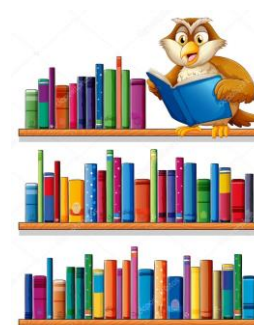
$23 \times 15 + 15 \times 77 =$

$79 \times 21 - 69 \times 21 =$

$340 \times 7 + 16 \times 70 =$

$250 \times 61 - 25 \times 390 =$

$67 \times 58 + 33 \times 58 =$

$55 \times 682 - 45 \times 682 =$

3. On the first shelf there are 5 more books than on the second shelf and 5 less than on the third shelf. There are 105 books altogether. How many books are there on each shelf? (Write an equation to solve the problem.)

4. The remainder of 1932 ÷ 17 is 11, the remainder of 261 ÷ 17 is 6. Is 2193 = 1932 + 261 divisible by 17? Can you tell without calculating and dividing?

5. Find all natural numbers such that upon division by 5 they give equal quotient and remainder.

6. Factorize (represent as a product of 2 or more factors) the following expressions (use the distributive property):

Example: $3 \times 5 + 3 \times 7 = 3 \times (5 + 7)$

a. $2 \times 3 + 2 \times 5 =$
b. $3x + 3y =$
c. $5a + 5b + 5c =$
d. $ab + ac =$
e. $ma - mb =$
f. $ds + dk - dl =$

7. There are red, green, and blue pencils in the box, 20 pencils altogether. There are 6 times as many blue pencils as the green ones, there are fewer red pencils then blue pencils. How many red, green, and blue pencils are there in the box?

8. Even or odd number will be the sum and the product of
   a. 2 odd numbers
   b. 2 even numbers
   c. 1 even and 1 odd number
   d. 1 odd and 1 even number
   Can you explain why?

9. On a picture below is the surface of a cube. List three pairs of numbers on the opposite sides of this cube.
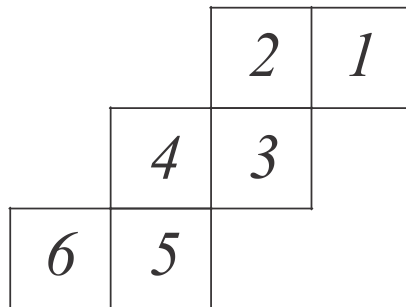
10. 4 angles are formed at the intersection of 2 lines. One of them is 30°. What is the measure of 3 others?
11. * 3 lines intersect at 1 point and form 6 angles. One is 44°, another is 38°. Can you find all other angles?