

MATH 4:

Homework 1

1. Draw the X and Y plane on a graph paper using a RULER (It is also called Cartesian coordinate system). Mark and then connect the following points with the RULER.

$$A(0,0) \rightarrow B(6,10) \rightarrow C(9,0) \rightarrow D(0,6) \rightarrow E(12,6) \rightarrow A(0,0)$$

2. How many multiples of 3 are there between ...

- (a) ... 1 and 20?
- (b) ... 1 and 100?
- (c) ... 1 and 200?
- (d) ... 100 and 200?

3. Compose an equation and solve it to answer the following question:

Lena is 5 years older than Andrew. Sum of their ages is 21. How old is each of them? (*hint: make an auxiliary drawing; make Lena or Andrew  $x$ , write expression for another one using  $x$ , write an equation, just like in class, solve it, write the answers:  $L$ : and  $A$ :)*)

4. A cookie costs the same as two packs of chewing gum. Together, a cookie and one pack of gum cost 75 cents. How much does the cookie cost? (*hint: make the cheapest item  $x$  and make an auxiliary drawing*).

5. You have a number of 8 - ounce cups and 12 - ounce cups. Will you be able to measure exactly ...

- (a) ... 28 ounces of water?
- (b) ... 34 ounces of water?
- (c) ... 31 ounces of water?

6. Compute:

$$25 \times 25 \quad 27 \times 102 \quad 11111 \times 11111 \quad 111111111 \times 111111111$$

7. Compute:

$$6)\overline{1662} \quad 3)\overline{1770} \quad 8)\overline{1672} \quad 11)\overline{1111}$$

**8.\*** Two players are playing the following game: they take turns moving the hour hand of the clock. Each player is allowed to move it by exactly 2 or exactly 3 hours forward.

In the beginning of the game the hand points at 12. The player who moves the hand to 6 wins. Note that moving the hand past 6 (for example, from 5 to 7) it is not a win, and the game continues.

Try playing this game several times with your parents before attempting to answer the questions below. Build your game clock from a paper plate or use a toy one if you have at home.

Do you think a first player may have a winning strategy?

Do you think a second player may have a winning strategy?

Describe your strategy here (not in the notebook)

[illegible]