

## MATH 4. Classwork # 15

1. Positive or negative value of  $m$  will make the following equalities true?

$$|m| = m$$

$$m = -m$$

$$|m| = -m$$

$$m + |m| = 0$$

$$-m = |-m|$$

$$m + |m| = 2m$$

$$m = |-m|$$

$$m - |m| = 2m$$

2. Numbers  $a$ ,  $b$  and  $c$  are marked on the number line below:



Which of the following statements are true?

a.  $a \cdot b < b$  or  $a \cdot b > b$

b.  $a \cdot b \cdot c < a$  or  $a \cdot b \cdot c > a$

c.  $-a \cdot c < c$  or  $-a \cdot c > c$

3. Rewrite without the parenthesis:

a.  $a - (b - (c + 4)) =$

b.  $x - (3 - (x + 6)) =$

c.  $a - (a - (a - 10)) =$

d.  $c - (c - (c - d)) =$

Complex fractions:

$$\frac{6}{1 - \frac{1}{3}} =$$

$$\frac{\frac{1}{2} + \frac{3}{4}}{\frac{1}{2}} =$$

$$\frac{1 - \frac{1}{6}}{2 + \frac{1}{6}} =$$

$$\frac{\frac{7}{10} + \frac{1}{3}}{\frac{7}{10} + \frac{1}{2}} =$$

**Solve the following equations:**

$$3 - \frac{5}{7}t = 1 - \frac{3}{7}t;$$

$$\frac{1}{8}u - 2 = \frac{5}{8}u + 1$$

$$|3(x - 5)| = 21$$

$$|8x - 10| = 6$$

$$|2x| = 42$$

**Simplify the following expressions:**

$$\text{a) } -(m - a) - (k + a) =$$

$$\text{b) } m + (k - a - m) =$$

$$\text{c) } m - (a + m) - (-a - m) =$$

$$\text{d) } a - (a - b)$$

**Simplify the following expressions:**

$$\text{a) } 2a + 3(a + b) - 3b =$$

$$\text{b) } 5(m - 3n) + 14n =$$

A swimming pool can be filled by one pipe in 5 hours, by another pipe in 10 hours and by a third pipe in 15 hours. How long it will take to fill up the pool if all three pipes are working?