Math 4. Homework #13.

1. Find the absolute value:

$|5| =$ $|-5| =$ $|10| =$ $|-10| =$ $|-10+2| =$

$|5-7| =$ $|8-4| =$ $|0| =$ $\left|\frac{1}{2}\right| =$ $\left|-\frac{1}{2}\right| =$

2. Solve for x:

1. $|x| = 3$
2. $|x| = 14$
3. $|x| = -2$

3. Circle all numbers that have an absolute value of 23:

$-\frac{1}{23}$ $\frac{1}{23}$ $\frac{23}{1}$ 1.23 $\frac{23}{23}$ 23 $-\frac{23}{1}$ -23

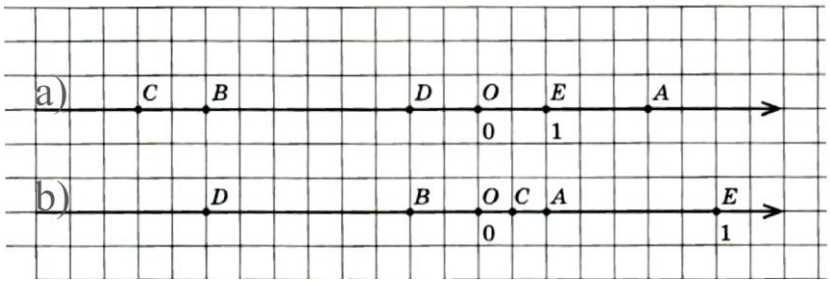
4. Circle pairs of reciprocal numbers:

1. a) $\frac{1}{23}$ and 23 b) $-\frac{1}{23}$ and $\frac{1}{23}$ c) $-\frac{1}{23}$ and $\frac{23}{1}$ d) $-\frac{1}{23}$ and $-\frac{23}{1}$
2. a) $-\frac{32}{45}$ and $-\frac{45}{32}$ b) $-\frac{32}{45}$ and $\frac{45}{32}$ c) $-\frac{32}{45}$ and $\frac{32}{45}$ d)

5. Compare a and b (use symbols < ; > ; =) if:

1. *a* and *b* are both negative numbers and $|b| > |a|$. Compare *b* *a*
2. *a* is a positive number and *b* is a negative number and $|b| > |a|$. Compare *b* *a*
3. *a* is a negative number and *b* is a positive number and $|b| > |a|$. Compare *b* *a*

6. Write the absolute values of coordinates of points in the picture (b) below.



Example:

a) $O\ is\ |0| = 0,\quad E\ is\ |1| = 1,\ A\ is\ \left|2\frac{1}{2}\right| = 2\frac{1}{2}\ ,\ D\ is\ |-1| = 1,\ B\ is\ |-4| = 4\ ,\quad C\ is\ |-5| = 5$

7. Solve an equation. Find ALL solutions that will make the statement a true statement:

$$|25 - 2x| = 5$$

8. There were several books on the shelf. On the second shelf, there were 4 times more books than on the first shelf. When 21 books were moved from the second shelf to the first shelf, the number of books on both shelves became equal. How many books were there on the first shelf at the beginning?

9. There are three people (Alex, Brook and Robert), one of whom is a knight, one is a knave, and one is a spy.

The knight always tells the truth, the knave always lies, and the spy can either lie or tell the truth.

Alex says: " Robert is a knave."

Brook says: "Alex is a knight."

Robert says: "I am the spy."

Who is the knight, who is the knave, and who is the spy?

10. Compute:

$\frac{1}{2} \cdot \frac{1}{3} =$ $\frac{1}{2} : \frac{1}{3} =$

$\frac{2}{3} \cdot \frac{3}{4} =$ $\frac{2}{3} : \frac{3}{4} =$

$\frac{5}{12} \cdot \frac{3}{16} =$ $\frac{5}{12} : \frac{3}{16} =$

11. An above ground pool can be filled by RED pipe in 5 hours and emptied by BLUE pipe in 7. How long it will take to fill up the same pool if you open RED pipe in and BLUE pipe out. Is it possible at all?

12. Move 4 matches to make 3 squares