



Concept: Solving Inequalities

Name: _____

COMPUTER COMPONENT

Instructions: Select the computer program *Understanding Equations* (Neufeld)
Follow the instructions to the Main Menu.
Select *Solving Inequalities* from the Main Menu.



Work through all sections of this topic **in order**:

- *Comparing Integers*
- *Inequalities*
- *Inequalities on the Number Line*
- *Solving Inequalities*
- *Solving Compound Inequalities*

Additional Required Materials: *Pencil Crayons*

Notice: *You will not be finishing the entire topic before stopping to complete some*
OFF COMPUTER EXERCISES.



As you work through the computer exercises, make your notes in the
NOTES section of this page.

When you reach the end of the section *Solving Compound Inequalities* on
the computer, move on to the **OFF COMPUTER EXERCISES** below.

NOTES:

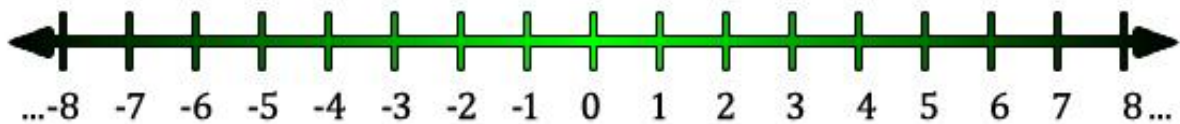
Remember:

- Negative numbers are _____ than zero and less than _____
numbers.

- _____ is less than _____ numbers but greater than _____ numbers.
- Positive numbers are greater than _____ numbers and _____ than zero.

Practice:

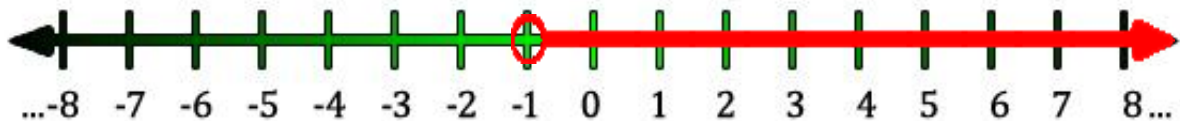
1. Mark where -7 and -4 are on the number line.



Fill in the inequality.

$$-7 \square -4$$

2. A graph of the inequality is given below.



Fill in the inequality:

$$x \square \underline{\hspace{2cm}}$$

3. Fill in the blanks.

_____ are mathematical _____ involving the symbols

$>$ (_____), $<$ (_____),

\geq (_____), and

\leq (_____),

4. The solution to an _____ is a value that makes the inequality _____.

5. When solving an inequality you can:

- Add the _____ quantity to _____ sides
- Subtract the _____ quantity from _____ sides
- Multiply or divide _____ sides by the same _____ quantity
- If you multiply or divide _____ sides by a _____ quantity, the inequality _____ must be _____.

Remember: When one _____ or _____ by a _____

number, the inequality sign is _____.

Example:

$$6 > 3 \quad (\text{True})$$

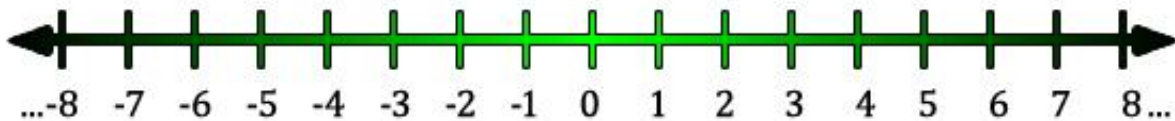
Multiply both sides by -3 $6 \times \underline{\quad} > 3 \times \underline{\quad}$ (_____)

... but by reversing the sign: $6 \times \underline{\quad} < 3 \times \underline{\quad}$ (_____)

Compound Inequalities are _____ inequalities joined by the terms _____.

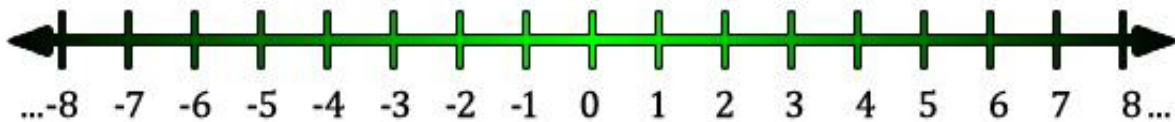
- A compound inequality contains the terms “_____” or “_____”.
- A compound inequality with “_____” is true only if _____ of it are true.

Example: Graph $x > -6$ and $x \leq 1$ (Hint: remember the open and closed dots)



- A compound inequality with “_____” is true if _____ of its inequalities are true.

Example: Graph $x > 1$ or $x \leq -5$ (Hint: remember the open and closed dots)



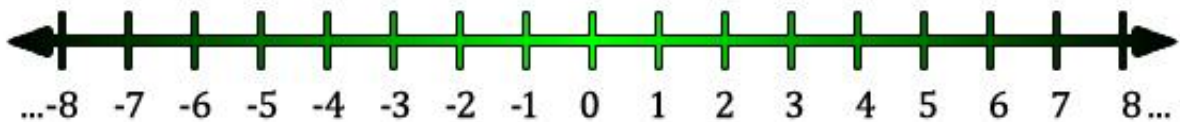
OFF COMPUTER EXERCISES

1. Match the signs

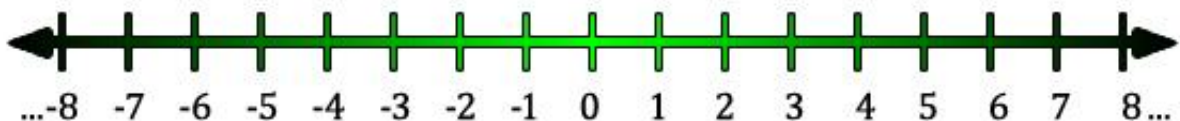
- | | | |
|-----|--------------------------|--------|
| (a) | greater than | $<$ |
| (b) | greater than or equal to | \leq |
| (c) | less than | $>$ |
| (d) | less than or equal to | \geq |

2. Determine what values of x make each inequality true. *Graph each answer.*

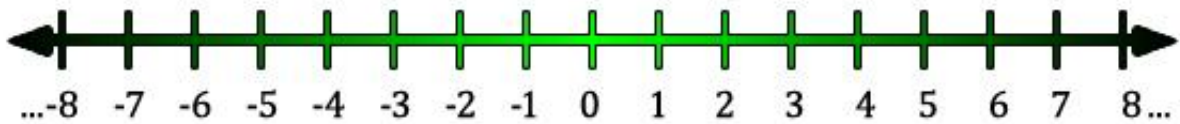
(a) $x + 3 < 5$



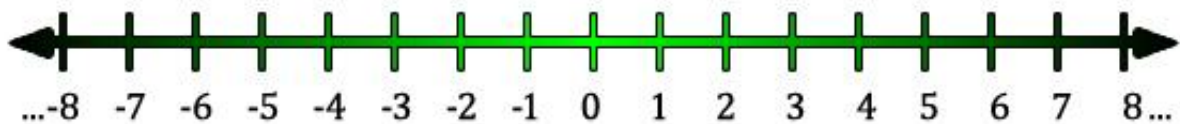
(b) $\frac{x}{4} \geq -1$



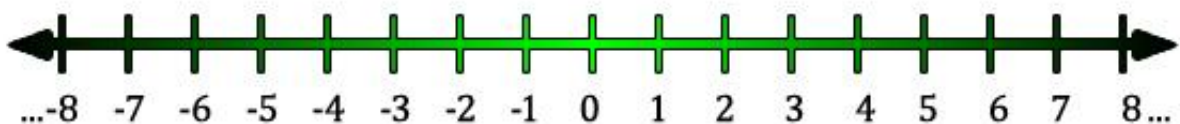
(c) $4x - 1 > 5x + 4$



(d) $8x - 1 \leq 5x + 8$



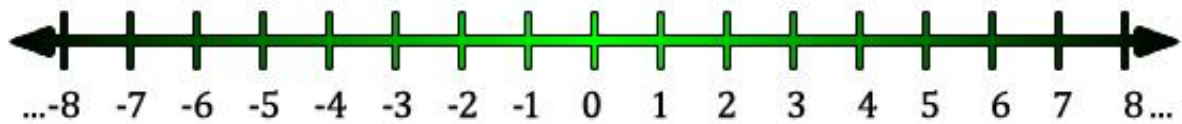
(e) $3x - 3 < 5x - 11$



3. For what values of w is $\frac{w}{4} + \frac{1}{4} \geq \frac{w}{2} - \frac{5}{4}$

4. Graph the following:

(a) $x > -2$ and $x \leq 5$



(b) $x \geq -2$ or $x < 6$

