Unit 9- Lesson 1

Aim: I can graph and write inequalities

Warm up: Give an example of when you think you would use and inequality?

Answers will vary

Guided Practice:

Vocabulary:

Inequality - Relation between two expressions that are not equal

Note: When graphing inequalities, make sure the variable is first

Ex: $x < 5$ not: $5 > x$

$>$	$\geq$	$<$	$\leq$
Greater than	**Greater than or equal to** **At Least** **Minimum**	**Less than**	**Less than or equal to** **At Most** **Maximum**
When graphing use: ○ not included	**When graphing use:** ● included	**When graphing use:** ○ not included	**When graphing use:** ● included

We can represent a linear inequality in one variable on a number line.

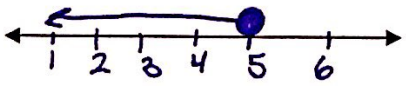
We use the following symbols in the representation:

- An open circle is used for < and > to indicate that the number is not included.
- A closed or filled-in circle is used for ≤ and ≥ to indicate that the number is included.
- A line with an arrow indicates that the line continues to infinity in the direction of the arrow.

A. Translate, Graph each given inequality on the number line and write the solution set for each inequality

1) $x \leq 5$

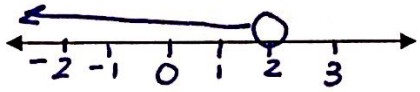
x is less than or equal to 5



{. . . . 4, 5 }

2) $x < 2$

x is less than 2



{. . . . 0, 1 }

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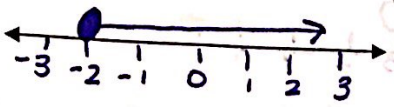
3) $x \geq -2$

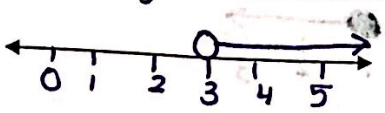
X is greater than or equal to -2



{-2, -1, ... }

4) $x > 3$

X is greater than 3

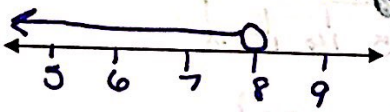


{4, 5, ... }

5) $8 > x$ $x < 8$

8 is greater than x

X is less than 8

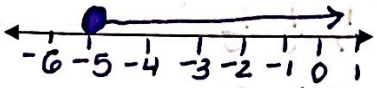


{ . . . . 6, 7 }

6) $-5 \leq x$ $x \geq -5$

-5 is less than or equal to x

X is greater than or equal to -5



{-5, -4, ... }

B. Write an inequality to represent the graph:

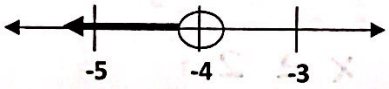
7)

$x > 6$

8)

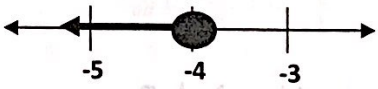
$x \geq 4$

9)



$x < -4$

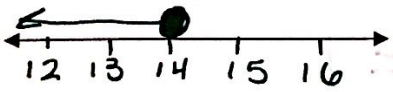
10)



$x \leq -4$

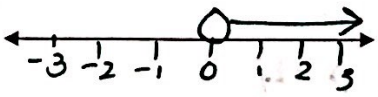
Problem Set: Graph the inequality on the given number line and write the solution set.

1) $x \leq 14$



{ . . . . . 13, 14 }

2) $x > 0$



{ 1, 2 . . . . . }

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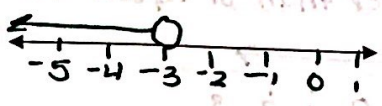
3) $x \geq 1$

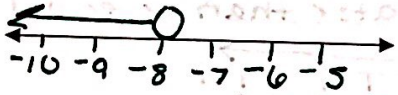
{1, 2 . . . . . }

4) $x < -3$



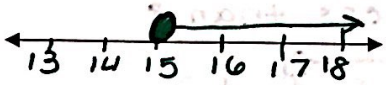
{. . . . . -5, -4}

5) $-8 > x$ $x < -8$



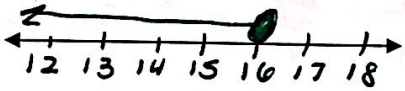
{. . . . . -10, -9}

6) $15 \leq x$ $x \geq 15$



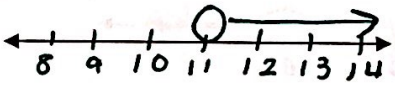
{15, 16 . . . . . }

7) $16 \geq x$ $x \leq 16$



{. . . . . 15, 16}

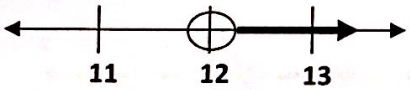
8) $x > 11$



{12, 13, ... }

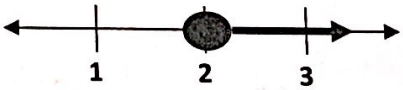
Write an inequality to represent the graph:

9)



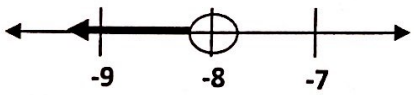
$x > 12$

10)



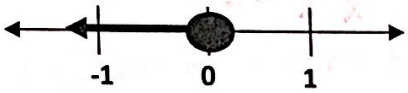
$x \geq 2$

11)



$x < -8$

12)

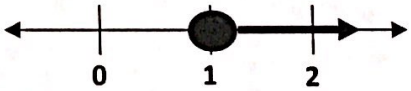


$x \leq 0$

13)

$x > -4$

14)



$x \geq 1$

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