Inequalities Review

Inequalities

An inequality is a mathematical sentence that compares expressions.

To write an inequality, look for the following phrases to determine where to place the inequality symbol.

Inequality Symbols				
Symbol	<	>	≤	≥
Key Phrases	• is less than • is fewer than	• is greater than • is more than	• is less than or equal to • is at most • is no more than	• is greater than or equal to • is at least • is no less than

Writing Inequalities

Write the following as an inequality.

1) A number q plus a number is great than or equal to -7.9.

2) The product of a number m and 8 is at most -40.

3) The quotient of a number d and -7 is at least -10.

4) The difference of a number n and 1.5 is fewer than 45.

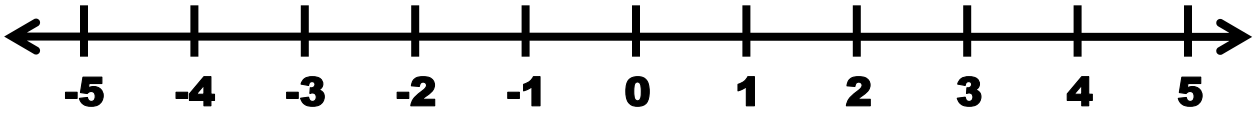
5) The sum of a number a and 7.8 is no more than 46.8.

6) 17 less than a number x is no less than 56.

Practice

$< or >$ - Empty Dots

$\leq or \geq$ - Full Dots

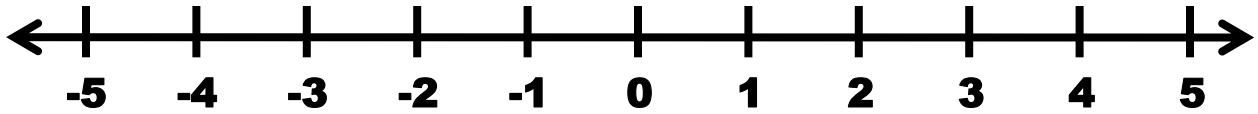


Inequality Symbols

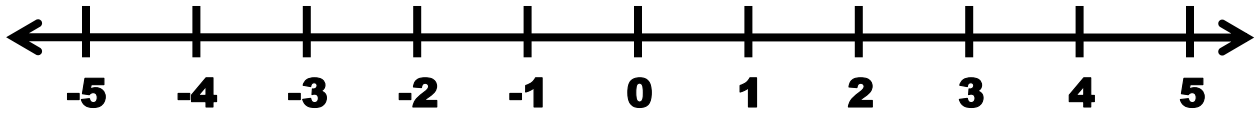
$<$ "Less than" $\leq$ "Less than or equal to"

$>$ "Greater than" $\geq$ "Greater than or equal to"

7) $z \geq 4$

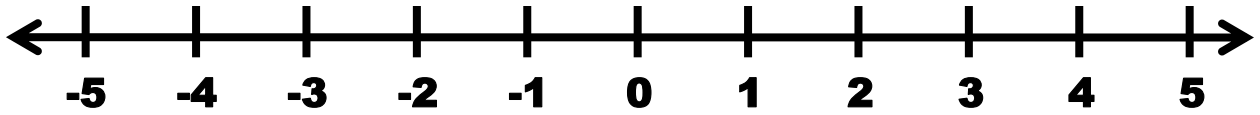


8) $t < -\frac{1}{2}$



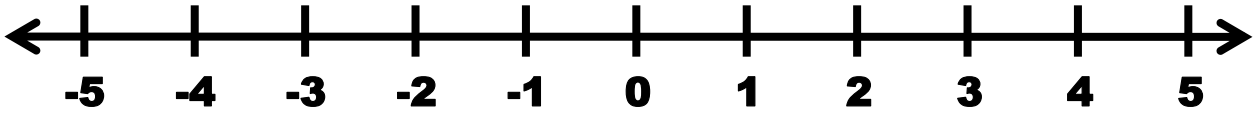
9) $-2 < x$

$\rightarrow \quad x > -2$



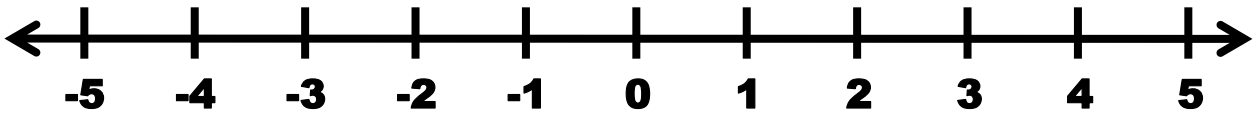
10) $3 \geq x$

$\rightarrow \quad x \leq 3$



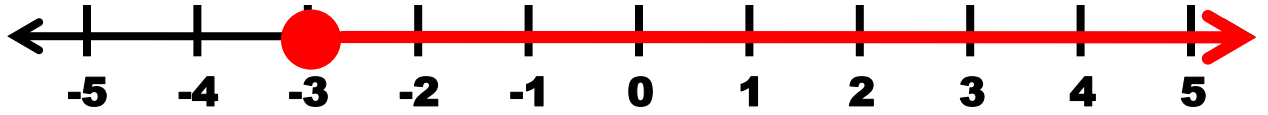
11) $-1\frac{1}{2} < x$

$\rightarrow \quad x > -1\frac{1}{2}$

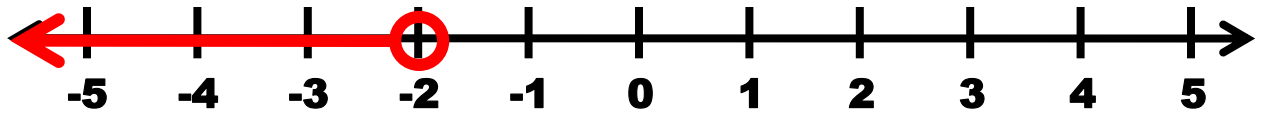


Write the inequality shown in each graph

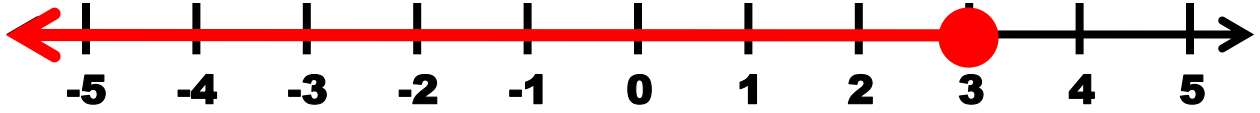
12)



13)



14)

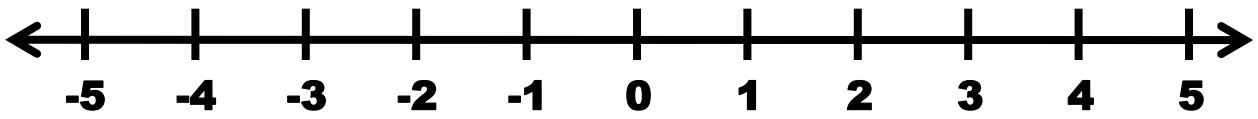


Solving Inequalities

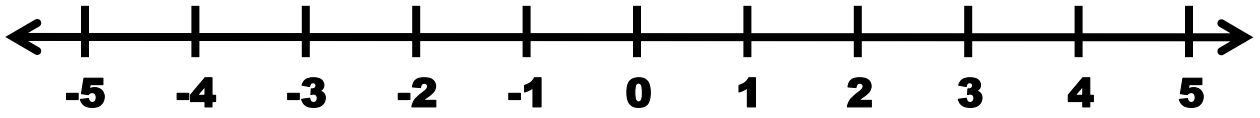
Solving inequalities is just like solving regular equations…

Solve and graph the following:

15) $t - 3 < -1$

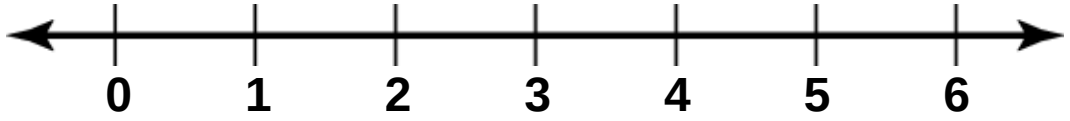


16) $14 \geq w - 11$

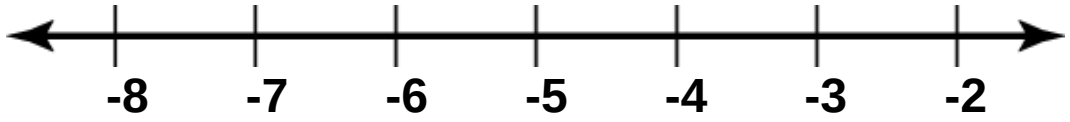


Solve and graph the following: **Review**

17) $9x > 36$

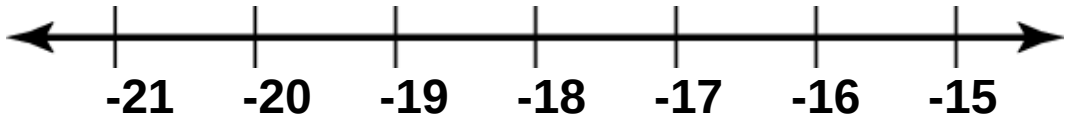


18) $-40 \geq 8k$



Solve and graph the following: **Review**

19) $-3 > \frac{n}{9}$

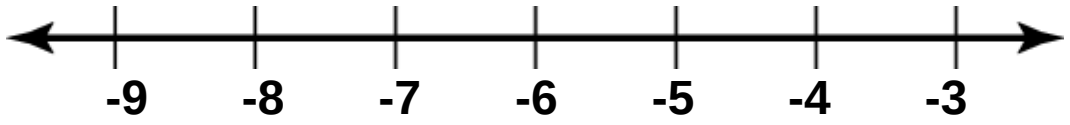


Solving inequalities is just like solving regular equations…

…HOWEVER, if you DIVIDE or MULTIPLY both sides by a NEGATIVE NUMBER, YOU HAVE THE CHANGE THE DIRECTION OF THE INEQUALITY SIGN!!

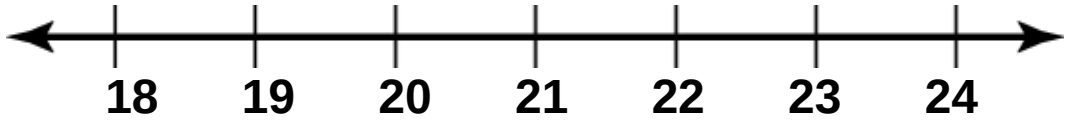
Solve and graph the following:

20) $\frac{x}{-3} > 2$

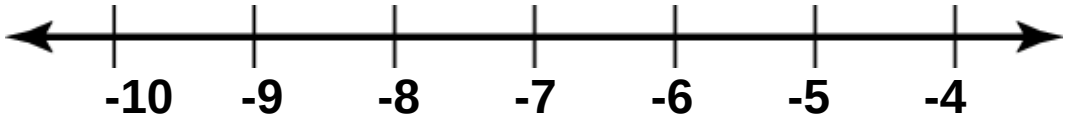


Solve and graph the following:

21) $\frac{w}{-7} \leq -3$



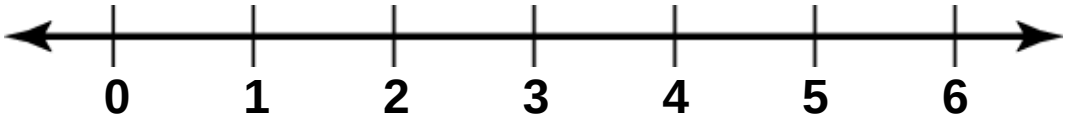
22) $1.2 \leq \frac{w}{-6}$



Solving Two-Step Inequalities

23) $5x - 4 \geq 11$

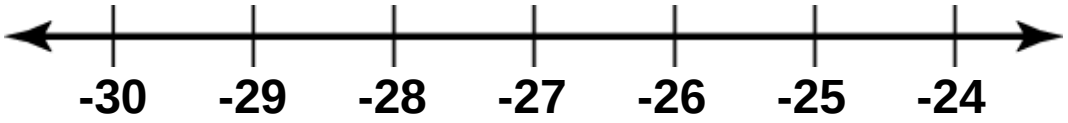
1. Cancel addition or subtraction
2. Cancel multiplication or division.
3. Remember to change the direction of the sign if you multiply or divide both sides by a negative!



Solving Two-Step Inequalities

24) $\frac{x}{-3} + 4 > 13$

1. Cancel addition or subtraction
2. Cancel multiplication or division.
3. Remember to change the direction of the sign if you multiply or divide both sides by a negative!



Solving Two-Step Inequalities

25) $2.2 - 3d > 19$

1. Cancel addition or subtraction
2. Cancel multiplication or division.
3. Remember to change the direction of the sign if you multiply or divide both sides by a negative!