

Lesson 11.1:

Writing and Graphing Inequalities

Essential Question

How can you use a number line to represent solutions of an inequality?

A number q plus 5 is greater than or equal to -7.9 . Write this word sentence as an inequality.

$$q + 5 \geq -7.9$$

Write the word sentence as an inequality.

1. A number x is at most -10 .

$$x \leq -10$$

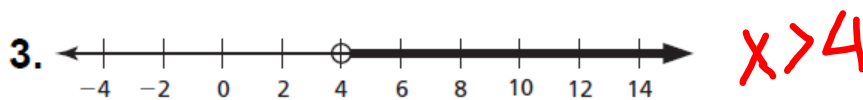
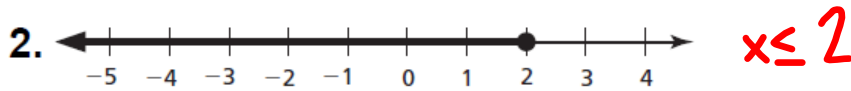
2. Twice a number y is more than $-\frac{5}{2}$.

$$2y > -\frac{5}{2}$$

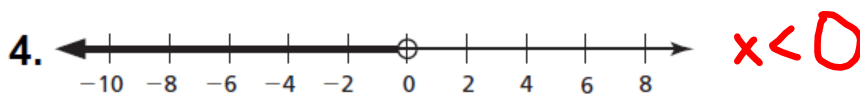
Write an inequality for the graph. Then, in words, describe all the values of x that make the inequality true.



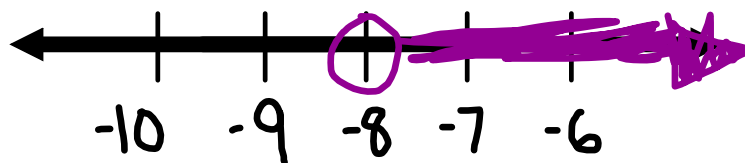
Solid dot \leq or \geq
(includes the #)



Open dot $<$ or $>$
(does not include the #)



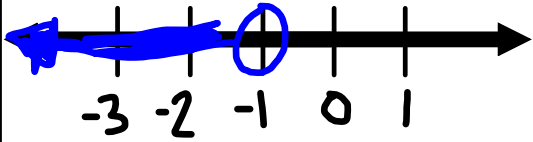
Graph $y > -8$.



Graph the inequality on a number line.

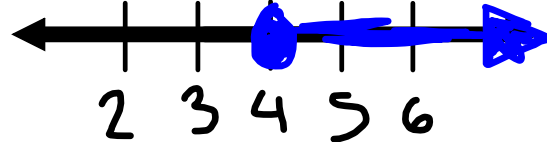
6. $x < -1$

Less than, shade left

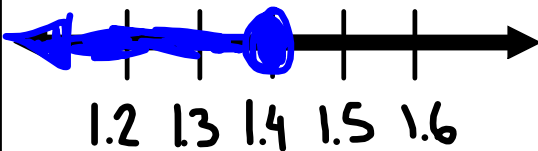


7. $z \geq 4$

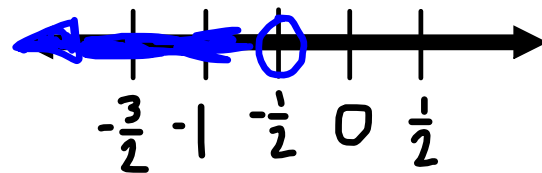
Follow the direction of the symbol (as long as the variable is on the left)



8. $s \leq 1.4$



9. $-\frac{1}{2} < t$



Tell whether -2 is a solution of each inequality.

a. $y - 5 \geq -6$

$$\underline{-2 - 5} \geq -6$$

$$-7 \geq -6$$

No

b. $-5.5y < 14$

$$-5.5(-2) < 14$$

$$11 < 14$$

Yes

Tell whether -5 is a solution of the inequality.

3. $x + 12 > 7$

$$\underline{-5 + 12 > 7}$$

$$7 > 7$$

No

4. $1 - 2p \leq -9$

$$\underline{1 - 2(-5) \leq -9}$$

$$\underline{1 - (-10) \leq -9}$$

$$11 \leq -9$$

No

5. $n \div 2.5 \geq -3$

$$\underline{-5 \div 2.5 \geq -3}$$

$$-2 \geq -3$$

Yes