

# 7.3 Solve Negative Inequalities

## MATH 7

Write your questions here!

Fill in each circle with the correct inequality.

ADD

$$8 \bigcirc 4$$

Add 5 to both sides

$$\_ \bigcirc \_$$

SUBTRACT

$$8 \bigcirc 4$$

Subtract 3 from both sides

$$\_ \bigcirc \_$$

MULTIPLY

$$8 \bigcirc 4$$

Multiply both sides by 3

$$\_ \bigcirc \_$$

DIVIDE

$$8 \bigcirc 4$$

Divide both sides by 2

$$\_ \bigcirc \_$$

OH NO!!!

$$8 \bigcirc 4$$

MULTIPLY BY A NEGATIVE 3

$$\_ \bigcirc \_$$

$$8 \bigcirc 4$$

DIVIDE BY A NEGATIVE 2

$$\_ \bigcirc \_$$

When you multiply or divide by a negative number you must

Will the inequality flip?

$$x - 2 \geq 8$$

$$-2x \geq 4$$

$$-4 > \frac{y}{3}$$

Solve the inequality.

$$-3x - 5 \geq 19$$

$$3x + 5 \geq -4$$

$$4 > 6 - \frac{y}{3}$$

## SUMMARY:

Now, summarize your notes here!

## 7.3 Solve Negative Inequalities

## PRACTICE

If you were to solve the following, would you flip the inequality? Circle the correct response.

1.  $x + 5 > -1$

YES the inequality flips!

or

NO the inequality would NOT flip!

2.  $6 \leq -2y$

YES the inequality flips!

or

NO the inequality would NOT flip!

3.  $-\frac{h}{4} < -7$

YES the inequality flips!

or

NO the inequality would NOT flip!

4.  $-5 > y - 1$

YES the inequality flips!

or

NO the inequality would NOT flip!

5.  $5t \leq -20$

YES the inequality flips!

or

NO the inequality would NOT flip!

6.  $6 < -\frac{1}{3}n$

YES the inequality flips!

or

NO the inequality would NOT flip!

Solve the following inequalities.

7.  $4x + 7 > -1$

8.  $-6 \leq -2y - 8$

9.  $-\frac{h}{3} + 5 < 7$

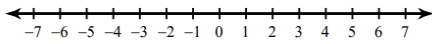
10.  $x + 5 > -2$

11.  $-12 \leq -3g$

12.  $5 - \frac{2}{3}t < 9$

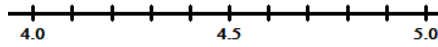
Solve the inequality and graph the solution set on the number line. Determine if the point is in the solution set.

13.  $-3 > \frac{2x-3}{5}$



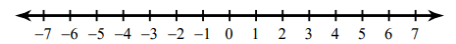
Is  $x = 5$  in the solution set?

14.  $3.1 - 2.5m \leq -8.4$



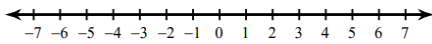
Is  $m = 4.8$  in the solution set?

15.  $-3(2h + 1) < 21$



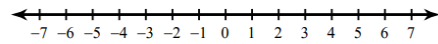
Is  $h = 0$  in the solution set?

16.  $12 \leq 4 + 2 - 3n$



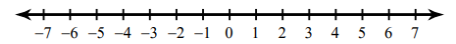
Is  $n = -4$  in the solution set?

17.  $30 \geq -10x$



Is  $x = 5$  in the solution set?

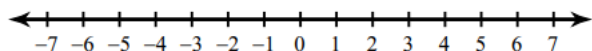
18.  $3p + 4 > -14$



Is  $p = 0$  in the solution set?

1. Solve the inequality and graph the solution set on the number line.

$$5 - 9x \geq -13$$



2. When solving the following, would you flip the inequality?

$$3x \geq -15$$

3. Mr. Kelly has 80 dollars. He spends 4 dollars every day on a Caramel Latte Mathiatto at Starbucks. Mr. Kelly always likes to have at least 20 dollars on him. How many days can Mr. Kelly buy a Caramel Latte Mathiatto and still have at least 20 dollars leftover?

**Part A**

Which inequality represents Mr. Kelly's money?

- (A)  $20 - 4d < 80$   
 (B)  $20 - 4d > 80$   
 (C)  $80 - 4d < 20$   
 (D)  $80 - 4d > 20$

**PART B**

Solve the inequality.

**PART C**

Which of the following are possible values of  $d$  that would make the inequality true?

$$d = 12$$

$$d = 15$$

$$d = 20$$

$$d = 21$$



**EXIT TICKET –**

Mr. Sullivan solved the following inequality incorrectly. Help a math teacher out and find his mistake!

$$\begin{array}{r}
 5 + 3x \geq -10 \\
 \underline{-5} \qquad \qquad \underline{-5} \\
 3x \geq -15 \\
 \underline{\quad} \quad \underline{\quad} \\
 x \leq -5
 \end{array}$$