

**C**

**Warm Up**

3/28

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February 29

March 12

March 20

**G**

**Warm Up**

3/28

Upload to Google Classroom a photo of the following Warm Ups from:

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March 19

# Homework Questions?

## Where Do Airline Pilots Keep Their Uniforms?

✈ For each exercise, write the letter of the answer in the box containing the exercise number.

In Exercises 1-6, match the inequality with its graph.

1  $x < 1$

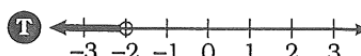
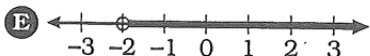
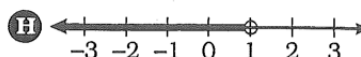
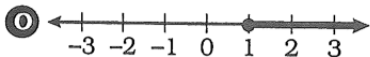
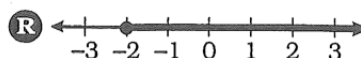
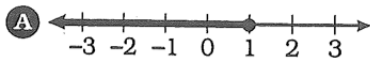
2  $x \leq 1$

3  $x > -2$

4  $x \geq -2$

5  $-2 > x$

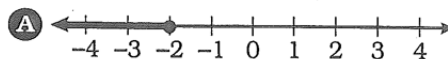
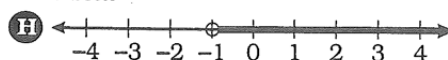
6  $1 \leq x$



In Exercises 7-18, solve the inequality. Then graph the solution.

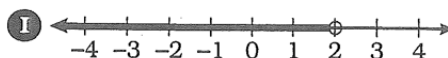
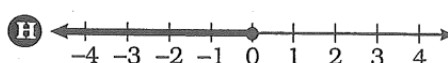
7  $4n + 1 < 9$

8  $7a - 2 \geq 5$



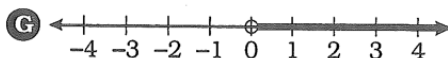
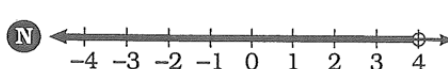
9  $3y + 10 \leq 4$

10  $8k - 3 > -27$



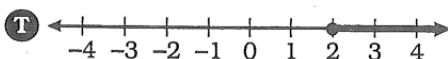
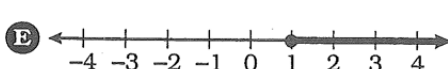
11  $\frac{x}{2} + 9 < 11$

12  $\frac{d}{6} - 4 \geq -5$



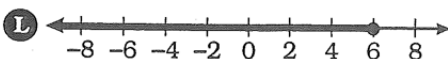
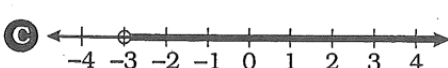
13  $\frac{u}{15} - 2 \leq -2$

14  $5p - 14 < 26$



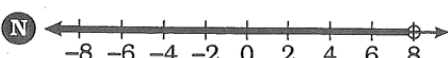
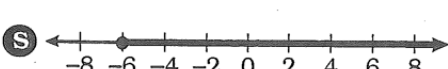
15  $18 \leq 7b + 4$

16  $-9 < 12y + 3$



17  $-14 \geq \frac{x}{3} - 16$

18  $5 < \frac{m}{8} + 5$



7	11	5	13	3	10	17	6	15	1	8	12	16	2	14	18	9	4
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Inequalities:  
Graphing the Solution Set of an Inequality

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Do you think we can solve a more complicated inequality for  $x$  the same way we solve a regular equation for  $x$ ?

$$2(3x + 5) > x - 20$$



Let's check out if some of our **properties of equality** can still be used:

$$\begin{array}{r}
 5 > 2 \\
 +3 \quad +3 \\
 \hline
 8 > 5 \quad \text{True} \\
 \end{array}
 \quad +3 \checkmark$$

$$\begin{array}{r}
 -10 > -10 \\
 -2 > -5 \quad \text{True} \\
 \end{array}
 \quad -10 \checkmark$$

$$\begin{array}{r}
 (10) \cdot -2 > -5 (10) \\
 -20 > -50 \quad \text{True} \\
 \hline
 2 \quad 2 \\
 \end{array}
 \quad \times 10 \checkmark$$

$$\begin{array}{r}
 -10 > -25 \quad \text{True} \\
 \end{array}
 \quad / 2 \checkmark$$

$$\begin{array}{r}
 (-3) \cdot -10 > -25 (-3) \\
 30 > 75 \quad \text{False} \\
 \end{array}
 \quad * (-3) \times$$

$$\begin{array}{r}
 30 < 75 \quad \text{True (only because we flipped the sign)} \\
 \hline
 -5 \quad -5 \\
 \end{array}
 \quad (-5) \times$$

$$\begin{array}{r}
 -6 < -15 \quad \text{False} \\
 \end{array}$$

$$\begin{array}{r}
 -6 > -15 \quad \text{True because of flipped sign} \\
 \end{array}$$

Can we use properties of equality to solve inequalities?

Yes

EXCEPT when...

We are multiplying or dividing by a negative. In that case we must **FLIP** the sign to create a correct inequality.

Format for solving, graphing, and checking:

## Solve

to find boundary number

$$2(3x + 5) > x - 20$$

pretend that this is an equal sign

$$\begin{array}{r} 6x + 10 > x - 20 \\ -x \quad -x \\ \hline 5x + 10 > -20 \\ -10 \quad -10 \\ \hline 5x > -30 \\ \frac{5x}{5} > \frac{-30}{5} \\ x > -6 \end{array}$$

This is our boundary #

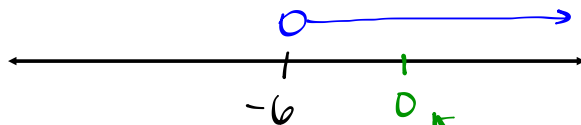
## Check

is boundary number correct

$$2(3x + 5) > x - 20$$
$$2(3(-6) + 5) \stackrel{?}{=} x - 20$$
$$2(-13) \stackrel{?}{=} -6 - 20$$
$$-26 = -26 \quad \checkmark$$

## Graph

$$x > -6$$



test point  
0 is a solution the way this is graphed

## Check

pick a test point

$$2(3x + 5) > x - 20$$

$$2(3(0) + 5) > 0 - 20$$

$$2(5) > -20$$

$$10 > -20$$

true statement, so 0 is a solution our line is going the right way.

## Solving Inequalities

1.  $7m + 9 \leq 6(m + 3)$



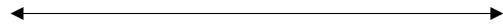
Check:

2.  $3(2x + 4) \geq 7x + 8$



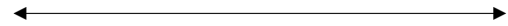
Check:

3.  $2(k + 4) \leq 3(2k - 4)$



Check:

4.  $5x + (-3) > 2(3 + x)$



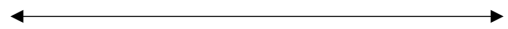
Check:

$$5. 5c + 2 < 2c + (-7)$$



Check:

$$6. 5x - 20 > 2x + 1$$



Check:

$$7. 3(s - 4) \geq 4s - 12$$



Check:

$$8. -9 - e > 3e + 11$$



Check: