

Unit: Equations & Inequalities  
Review

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

## EQUATIONS & INEQUALITIES UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

I CAN MODEL AND SOLVE TWO-STEP EQUATIONS.			7.11A
1. $\begin{array}{r} x - 10.6 = 16.9 \\ + 10.6 \quad + 10.6 \\ \hline X = 27.5 \end{array}$ <div style="border: 1px solid blue; padding: 2px; display: inline-block;">X = 27.5</div>	2. $(12) \frac{x}{12} = 7.5(12)$ $X = 90$ $\begin{array}{r} 7.5 \\ \times 12 \\ \hline 150 \\ 750 \\ \hline 90.0 \end{array}$ <div style="border: 1px solid red; padding: 2px; display: inline-block;">X = 90</div>	3. $\frac{2.1x}{2.1} = \frac{23.1}{2.1}$ $2 \downarrow \overline{) 23 \downarrow}$ $21 \overline{) 231}$ $\begin{array}{r} 11 \\ 21 \overline{) 231} \\ \underline{-21} \phantom{0} \\ 21 \\ \underline{-21} \\ 0 \end{array}$ <div style="border: 1px solid green; padding: 2px; display: inline-block;">X = 11</div>	
4. $\begin{array}{r} -6x - 10 = 20 \\ + 10 \quad + 10 \\ \hline -6x = 30 \\ -6 \quad -6 \\ \hline X = -5 \end{array}$ <div style="border: 1px solid red; padding: 2px; display: inline-block;">X = -5</div>	5. $\begin{array}{r} 12x - 15 = 33 \\ + 15 \quad + 15 \\ \hline 12x = 48 \\ 12 \quad 12 \\ \hline X = 4 \end{array}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">X = 4</div>	6. $\frac{x}{4} + 5 = 25$ $\frac{x}{4} = 20(4)$ $X = 80$ <div style="border: 1px solid blue; padding: 2px; display: inline-block;">X = 80</div>	
7. $\begin{array}{r} -5x + 9 = 24 \\ -9 \quad -9 \\ \hline -5x = 15 \\ -5 \quad -5 \\ \hline X = -3 \end{array}$ <div style="border: 1px solid green; padding: 2px; display: inline-block;">X = -3</div>	8. $\frac{x}{2} - 7 = -10$ $(2) \frac{x}{2} = -3(2)$ $X = -6$ <div style="border: 1px solid red; padding: 2px; display: inline-block;">X = -6</div>	9. $3x + 12 = 48$ $\frac{3x}{3} = \frac{36}{3}$ $X = 12$ <div style="border: 1px solid blue; padding: 2px; display: inline-block;">X = 12</div>	

### I CAN DETERMINE IF A VALUE IS TRUE GIVEN AN EQUATION.

10. If  $x = -3$ , then which of the following equations are true? Circle all that are true.

A.  $\frac{x}{3} - 9 = 15$

B.  $4x - 9 = -21$

C.  $6x + 9 = -13$

D.  $-2x + 18 = 24$

A.  $\frac{-3}{3} - 9 = 15$

$-1 - 9 = 15$   
 $-10 = 15$  NO!

C.  $6(-3) + 9 = -13$   
 $-18 + 9 = -13$   
 $-9 = -13$  NO!

B.  $4(-3) - 9 = -21$

$-12 - 9 = -21$   
 $-21 = -21$  ✓

D.  $-2(-3) + 18 = 24$   
 $6 + 18 = 24$   
 $24 = 24$  ✓

B and D are correct



Substitute 8 for the variable to see if it makes a true statement.

I CAN DETERMINE IF $k=8$ IS PART OF THE SOLUTION SET.			6.9d
11.	$5k < 39$ $5(8) < 39$ $40 < 39$ <b>FALSE!</b>	12.	$\frac{k}{2} \leq 4$ $\frac{8}{2} \leq 4$ $4 \leq 4$ <b>TRUE!</b>
13.	$k - 6 > 2$ $8 - 6 > 2$ $2 > 2$ <b>FALSE!</b>		

I CAN GRAPH INEQUALITIES ON THE NUMBER LINE.			6.9B
14.	$x \geq 6$ 	15.	$15.5 > x$ $x < 15.5$ 
16.	$x \leq -3$ 	17.	Write an inequality to describe the number line below. $x \geq 3$ 
18.	Write an inequality to describe the number line below. $x > 5$ 	19.	Write an inequality to describe the number line below. $x \leq 10$ 

I CAN SOLVE AND GRAPH MATHEMATICAL INEQUALITIES.			6.9B, 6.10A	
20.	<p>We changed this problem in class to:</p> $-3x - 12 > 45$ $-3x - 12 > 45$	$-3x - 12 > 45$ $+12 +12$ $-3x > 57$ $-3 -3$ $x < -19$	21.	$16 \geq 6 + \frac{x}{2}$ Rewrite first! $6 + \frac{x}{2} \leq 16$ $-6 -6$ $\frac{x}{2} \leq 10$ $(2) \frac{x}{2} \leq 10(2)$ $x \leq 20$
22.	$10 - x \leq 35$ fill in the imaginary 1! $10 - 1x \leq 35$ $-10 -10$ $-1x \leq 25$ $-1 -1$ $x \geq -25$		23.	$30 < 2x - 6$ $2x - 6 > 30$ $+6 +6$ $2x > 36$ $\frac{2x}{2} > \frac{36}{2}$ $x > 18$
24.	$\frac{x}{-2} - 8 \geq 18$ $\frac{x}{-2} - 8 \geq 18$ $+8 +8$ $\frac{x}{-2} \geq 26$ $(-2) \frac{x}{-2} \geq 26(-2)$ $x \leq -52$		25.	$1.5x + 12 < 18$ $-12 -12$ $1.5x < 6$ $\frac{1.5x}{1.5} < \frac{6}{1.5}$ $x < 4$

2 additional questions over properties & 1 question on writing inequalities!