

Honors Algebra I  
Unit 6 Practice Test

Name Key

Date \_\_\_\_\_

1. Solve.

a.  $x + 3 \geq 7$

$x \geq 4$

b.  $2g - 3 < 5$

$2g < 8$

$g < 4$

c.  $-(p - \frac{3}{4}) \leq \frac{1}{2}$

$-p + \frac{3}{4} \leq \frac{1}{2}$

$-p \leq -\frac{1}{4}$

$p \geq \frac{1}{4}$

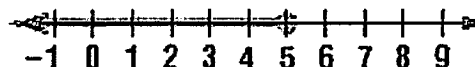
← NOTE SIGN SWITCH

d.  $\frac{2h - 8}{-3h + 5} > \frac{3h + 1}{-3h + 5}$

$-h > 6$

$h < 6$

2. Write an inequality that describes the set of points graphed on the number line.



$x \leq 5$

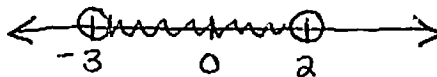
3. If 5 more than twice a number is less than 9 more than the number, what can the number be?

$2x + 5 < x + 9$

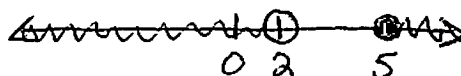
$x < 4$

4. Graph each compound inequality.

a.  $-3 < x$  AND  $x < 2$



b.  $x < 2$  OR  $x \geq 5$



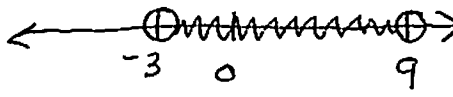
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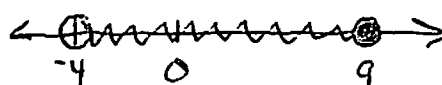
Date \_\_\_\_\_

5. Solve and graph the solution on a number line.

a.  $-5 < x - 2 < 7$   
 $\quad \quad \quad +2 \quad \quad +2 \quad +2$   
 $-3 < x < 9$   
 $x > -3 \text{ AND } x < 9$



b.  $-14 < 2x - 6 \leq 12$   
 $\quad \quad \quad +6 \quad \quad +6 \quad +6$   
 $-8 < 2x \leq 18$   
 $\quad \quad \quad \div 2 \quad \quad \div 2 \quad \div 2$   
 $-4 < x \leq 9$   
 $x > -4 \text{ AND } x \leq 9$



c.  $2x - 3 < 10 \text{ AND } 3x + 1 > 22$   
 $2x < 13 \quad 3x > 21$   
 $x < 6.5 \text{ AND } x > 7$   
 No number is less than 6.5 AND greater than 7, so  $\emptyset$

6. Circle True or False. If false, circle the incorrect word in the sentence and put the correct word in the blank.

a. T or F The most basic absolute-value function is called the mother function.  
parent

b. T or F Any change to the most basic function is called a transformation.  
 \_\_\_\_\_

c. T or F When graphing an inequality with a "greater than or equal to" sign use an open circle on the number line. closed

d. T or F The vertex of the absolute-value graph of the equation  $y = |x - 2|$  is at (0, -2).  
(2, 0)

e. T or F When solving an inequality, if you multiply or divide by a negative number the inequality sign switches around. \_\_\_\_\_

Honors Algebra 1  
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7. A catering business specializes in catering wedding receptions. They charge \$450 for setting up the buffet and an additional \$7.50 per guest.

a. Mr. and Mrs. Burns want to spend no more than \$2250 on the catering for their daughters wedding. Write an inequality in terms of the number of guests,  $g$ , that they can invite to the reception.

$$7.50g + 450 \leq 2250$$

b. What is the maximum number of guests that can be invited to the reception?

$$7.50g + 450 \leq 2250$$

$$7.50g \leq 1800$$

$$g \leq 240 \text{ people}$$

8. In the following equations describe the transformation(s) of the absolute-value parent function and identify the domain and range.

a.  $y = |x - 3|$

vertex moved 3 right

Domain:  $\mathbb{R}$  Range:  $y \geq 0$

b.  $y = |x| - 3$

vertex moved down 3

Domain:  $\mathbb{R}$  Range:  $y \geq -3$

c.  $y = |x + 1| - 4$

vertex moved left 1 & down 4

Domain:  $\mathbb{R}$  Range:  $y \geq -4$

d.  $y - 1 = -|x| + 1$

$$y = -|x| + 1$$

Vertex moved up 1, reflection across x-axis

Domain:  $\mathbb{R}$  Range:  $y \leq 1$

9. Solve the absolute value equations.

a.  $|x - 1| = 6$

$$\begin{array}{l} x - 1 = 6 \quad x - 1 = -6 \\ x = 7 \quad \text{or} \quad x = -5 \end{array}$$

b.  $|4x + 5| = -1$

Absolute Value can never be negative, so  $\emptyset$

c.  $|5x - 1| = 4$

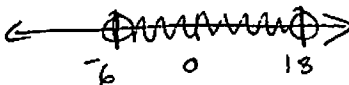
$$\begin{array}{l} 5x - 1 = 4 \quad 5x - 1 = -4 \\ x = 1 \quad \text{or} \quad x = -3/5 \end{array}$$

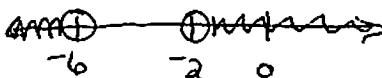
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10. Solve and graph the absolute-value inequalities.

a.  $|x-12| < 6$        $x-12 < 6$  AND  $x-12 > -6$   
                                  $x < 18$  AND  $x > -6$       

b.  $|x+4| > 2$        $x+4 > 2$  OR  $x+4 < -2$   
                                  $x > -2$  OR  $x < -6$       

c.  $|-2+x| > 6$        $-2+x > 6$  OR  $-2+x < -6$   
                                  $x > 8$  OR  $x < -4$       