

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

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

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

← NOTE SIGN SWITCH

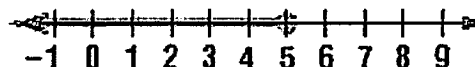
$-p + \frac{3}{4} \leq \frac{1}{2}$

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.



$x \leq 5$

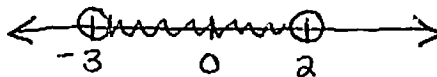
3. If 5 more than twice a number is less than 9 more than the number, what can the number be?

$2x + 5 < x + 9$

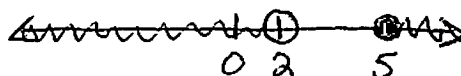
$x < 4$

4. Graph each compound inequality.

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



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



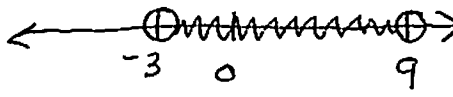
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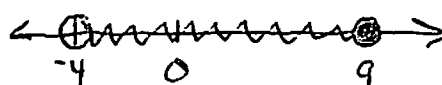
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5. Solve and graph the solution on a number line.

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. _____

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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. $|x - 1| = 6$

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

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

Absolute Value can never be negative, so \emptyset

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

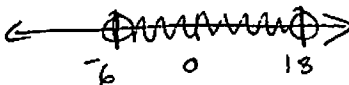
$$\begin{array}{l} 5x - 1 = 4 \quad 5x - 1 = -4 \\ \boxed{x = 1 \text{ or } x = -3/5} \end{array}$$

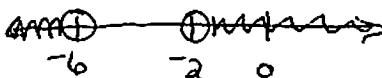
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10. Solve and graph the absolute-value inequalities.

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 $x < -4$ 