WS #3

Key

Advanced Algebra
Quarter Review

Name _____
Hour _____

1. The General Standard Form for a linear equation is $Ax + By = C$

2. The slope formula is $m = \frac{y_2 - y_1}{x_2 - x_1}$

3. Use the following words to complete each sentence: positive, negative, zero, no slope, undefined, x-intercept, y-intercept

   a. The x intercept is the point where a line intersects the x-axis.

   b. The y intercept has the coordinate (0,y).

   c. If a line is horizontal, then the slope is zero

   d. If a line rises to the right, then the slope is positive

   e. If a line is vertical, then the slope is no slope

   f. If a line rises to the left, then the slope is negative

Write an equation of a line in slope-intercept form that meets the following conditions.

4. That has the same slope as $3x - 4y = 12$ and the same y-intercept as $2x - 4y = 20$.

$-4y = -3x + 12$ $\quad -4y = -2x + 20$

$y = \frac{3}{4}x - 3$ $\quad y = \frac{1}{2}x - 5$

$y = \frac{3}{4}x - 5$

5. That has an x-intercept of 4 and a y-intercept of 6.

(4, 0) (0, 6) $\quad \frac{6-0}{0-4} = \frac{6}{-4} = \frac{-3}{2}$ $\quad y - 0 = -3/2(x - 4)$

$y = -3/2\,x + 6$

6. That contains the points (4, 1) and (4, 9).

$\frac{9-1}{4-4} = \frac{8}{0} \Rightarrow$ undefined $\quad x = 4$

7. That has the slope of 5 and contains (-2, 1)

$y - 1 = 5(x + 2)$

$y - 1 = 5x + 10$

$y = 5x + 11$

8. That passes through (6, -4) and is perpendicular to $2x - 3y = 3$.

$-3y = -2x + 3$

$y = \frac{2}{3}x - 1$

$m_{\perp} = -3/2$

$y + 4 = \frac{-3}{2}(x - 6)$

$y + 4 = \frac{-3}{2}x + 9$

$y = \frac{-3}{2}x + 5$

Write an absolute value function whose graph represents the following.

9. a translation of 3 units down and 4 units to the right from $f(x) = |x|$

$f(x) = |x-4| - 3$

10. a translation of 2 units down and 5 units to the left from $f(x) = |x|$

$f(x) = |x+5| - 2$

Make a T-chart for each of the following.

11. $y = |x+5| - 2$

x	y
-7	0
-6	-1
-5	-2
-4	-1
-3	0

12. $y = -3|x-2| + 1$

x	y
0	-5
1	-2
2	1
3	-2
4	-5

13. $y = 5|x| + 3$

x	y
-2	13
-1	8
0	3
1	8
2	13

14a. A candle is 7 in. tall after burning 1 hour and 5 in. tall after burning 2 hours. Write a linear equation to model the height of the candle.

(1,7) (2,5) $\frac{5-7}{2-1} = \frac{-2}{1} = -2$

$y - 7 = -2(x-1)$

$y - 7 = -2x + 2$

$\boxed{y = -2x + 9}$

b. How tall will the candle be after 4 hours?

$y = -2(4) + 9$

$y = -8 + 9$

$\boxed{y = 1 \text{ inch}}$

c. When will it burn out? → $y = 0$

$0 = -2x + 9$

$-9 = -2x$

$\boxed{x = 4.5 \text{ hrs}}$

d. How tall was the candle originally?

9 inches