

Integrated Math  
Unit 3 Test Review – Writing Equations of Lines, Parallel, Perpendicular

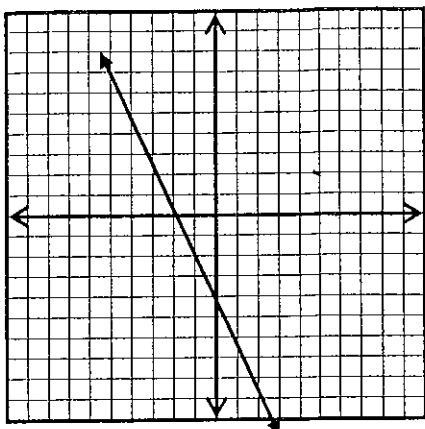
Name: Key

1) What is the equation of the line that has a slope that is undefined?

- A)  $y = -3$       B)  $y = x + 3$       C)  $y = 3$       **D)  $x = 3$**

2) Which of the following equations represents the graph to the right?

- A)  $x + 2y = -4$   
 B)  $x + 2y = -2$   
 C)  $2x - y = -4$   
**D)  $2x + y = -4$**   
 $y = -2x - 4$



3) What is the slope of the graph of the equation  $10x + 4y = 20$ ?

- A) -5      **B)  $-\frac{5}{2}$**       C)  $\frac{5}{2}$       D) 5

$4y = -10x + 20$   
 $y = -\frac{5}{2}x + 5$

4) What is the equation of the line that passes through the points (-1, 3) and (2, 9)?

- A)  $y = -2x + 5$       B)  $y = -2x - 5$       **C)  $y = 2x + 5$**       D)  $y = 2x - 5$

$\frac{3-9}{-1-2} = \frac{-6}{-3} = 2$   
 $3 = -1(2) + b$   
 $3 = -2 + b$   
 $5 = b$

5) Write the equation of a line that is perpendicular to a line that has a slope of -3 and has a y-intercept of 2.

- A)  $y = -3x + 2$       B)  $y = 3x + 2$       C)  $y = \frac{-1}{3}x + 2$       **D)  $y = \frac{1}{3}x + 2$**

6) Which statement is true about the graphs of these equations?

- i.  $4x - 5y = 5$   
 ii.  $4x + 5y = 20$   
**A) The lines are not parallel or perpendicular**  
 B. The lines are parallel  
 C. The lines are perpendicular  
 D. The lines are the same

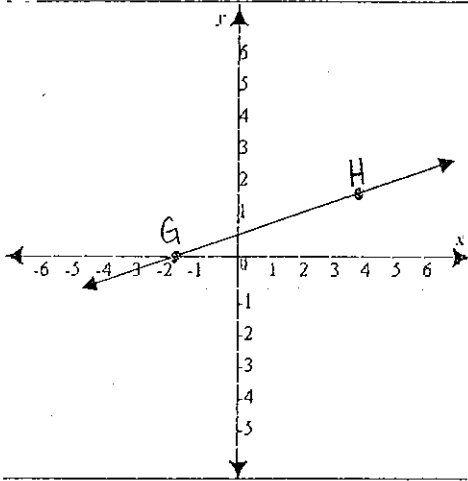
$-5y = -4x + 5$        $5y = -4x + 20$   
 $y = \frac{4}{5}x - 1$        $y = -\frac{4}{5}x + 4$

7) Which of the following is an equation of the line perpendicular to  $2x - 3y = 9$  and passing through (3, -5)?

- A)  $y = \frac{-3}{2}x - \frac{1}{2}$**       B.  $y = \frac{-2}{3}x - 3$       C.  $y = \frac{3}{2}x - 9$       D.  $y = \frac{-3}{2}x - 7$

$-3y = -2x + 9$   
 $y = \frac{2}{3}x - 3$   
 $\perp m = -\frac{3}{2}$   
 $-5 = 3(-\frac{3}{2}) + b$   
 $-5 = -\frac{9}{2} + b$   
 $-\frac{1}{2} = b$

8) Line m is the perpendicular bisector of GH. What is the equation of line m?



$$G(-2, 0) \quad H(4, 2)$$

$$(1, 1) \quad m = -3$$

$$1 = -3(1) + b$$

$$1 = -3 + b$$

$$4 = b$$

$$y = -3x + 4$$

$$m = \frac{0-2}{-2-4} = \frac{-2}{-6} = \frac{1}{3}$$

(A)  $y = -3x + 4$

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

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

D.  $y = 3x + 6$

9) A line segment has endpoints M (-5, 2) and N (3, -1). Which is an equation of a line perpendicular to MN?

A.  $y = -8/3x + 5$

B.  $y = -3/8x - 1$

(C)  $y = 8/3x + 2$

D.  $y = 3/8x - 4$

$$\frac{2+1}{-5-3} = \frac{3}{-8} = -\frac{3}{8}$$

10) What value of k will make the line  $kx - 6y = 12$  perpendicular to the line  $y = -3x + 8$ ?

A. 3

B. 12

C. -12

(D) 2

$$m = 1/3$$

$$kx - 6y = 12$$

$$-6y = -kx + 12$$

$$y = \frac{k}{6}x - 2$$

$$\perp m = -3$$

11) Which point lies on the line that passes through (2, 3) and is parallel to the graph of the line  $y = -1/3x + 12$ ?

A. (3, 5) (2, 3)

(B) (-1, 4) (2, 3)

C. (3, -2) (2, 3)

D. (3, 2) (2, 3)

$$m = -1/3 \quad (2, 3)$$

$$\frac{5-3}{3-2} = 2$$

$$\frac{4-3}{-1-2} = \frac{1}{-3} = -\frac{1}{3}$$

$$\frac{-2-3}{3-2} = \frac{-5}{1} = -5$$

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

12) What is the slope intercept form of the linear equation with a graph that passes through (6, 4) and is perpendicular to the graph of  $2x + 3y = 45$ ?

A.  $y = 3/2x - 1.6$

(B)  $y = 3/2x - 5$

C.  $y = -3/2x - 5$

D.  $y = -3/2x + 4$

13) Write the equation of the data in the following table:

x	-4	2	5	7
y	14	2	-4	-8

$$y = -2x + 6$$

$$\frac{14-2}{-4-2} = \frac{12}{-6} = -2$$

$$2 = (-2)(2) + b$$

$$2 = -4 + b$$

$$b = 6$$

$$3y = -2x + 45$$

$$y = -\frac{2}{3}x + 15$$

$$\perp m = 3/2$$

$$4 = \frac{3}{2}(6) + b$$

$$4 = 9 + b$$

$$-5 = b$$

14) Write the equation of the line whose x-intercept is -5 and whose y-intercept is 2.

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

$$(-5, 0) \quad (0, 2)$$

$$\frac{0-2}{-5-0} = \frac{-2}{-5} = \frac{2}{5}$$

15) Write the equation of a line through the points (3, -5) and (3, 7).

$$x = 3$$