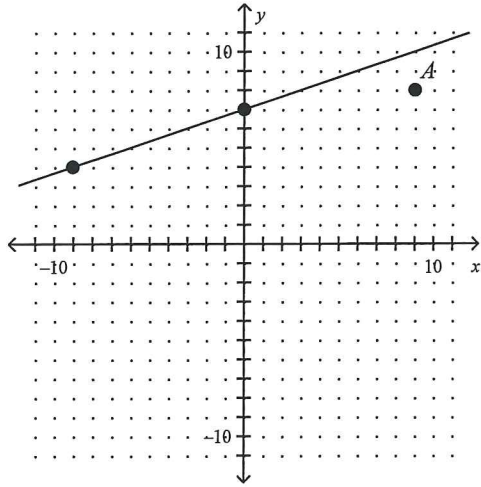


_____ 4. Find the equation of the line that is parallel to the line in the graph and passes through point A .



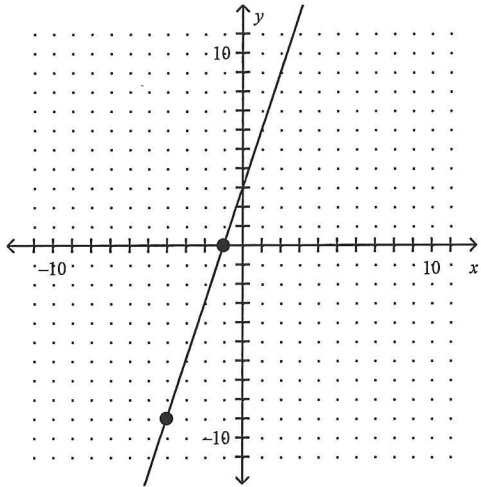
a. $y = \frac{1}{3}x + 5$

c. $y = -\frac{1}{3}x + 7$

b. $y = 3x + 5$

d. $y = 3x + 7$

_____ 5. Which of the following lines is NOT parallel to the line shown in the graph?



a. $3x + y = 3$

c. $-12x + 4y = 9$

b. $y - 3x = 9$

d. $3x - y = 3$

_____ 6. Which pair of lines could be perpendicular when graphed?

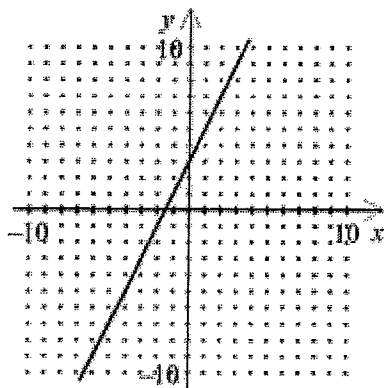
a. $y = 3, x = 5$

c. $y = 2x, y = \frac{1}{2}x$

b. $x = 4, y = x$

d. $y = 3, y = x$

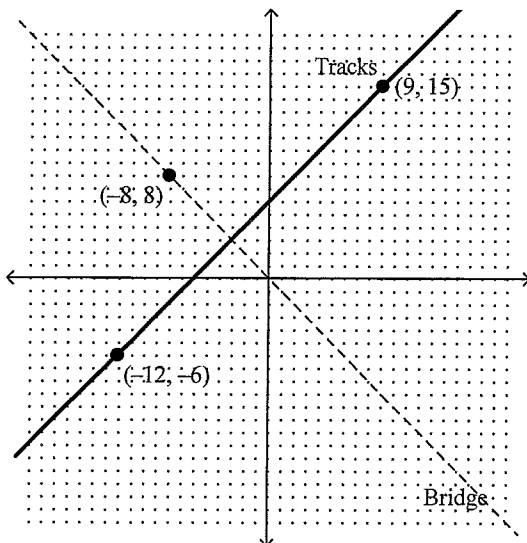
7. The line $y = 2x + 3$ is graphed below.



Are the lines $y = 2x + 3$ and $2y - 4x = 6$ parallel, perpendicular, neither parallel nor perpendicular, or the same line?

- a. the same line
 b. neither parallel nor perpendicular
 c. perpendicular
 d. parallel

8. A pedestrian bridge is to be built over railroad tracks running through a town. The bridge will be perpendicular to the tracks and the middle of the bridge will be directly above the tracks. If the town is represented on a coordinate grid, the tracks are a straight line running through $(9, 15)$ and $(-12, -6)$, with one end of the bridge at $(-8, 8)$.



What are the coordinates of the other end of the bridge?

- a. $(2, -2)$ b. $(-3, 3)$ c. $(0, 0)$ d. $(3, -3)$
9. Write an equation of the line that passes through $(7, -8)$ and is parallel to the line $y = 4x + 5$.

Name: _____

ID: A

10. Write an equation of the line that passes through $(-18, -4)$ and is parallel to the line $y = \frac{1}{3}x + 3$.

11. Which of the following lines are parallel to each other?
 $2x - 6y = 3$; $6x + 2y = 3$; $-2x + 6y = 3$

12. Write an equation of the line that passes through $(4, 0)$ and is perpendicular to the line $y = \frac{1}{5}x + 1$.

13. Create an equation to represent how to find any term in the sequence.

$$1, 3, 5, 7, \dots a_1 = 1$$

14. Create an equation to represent how to find any term in the sequence.

$$-5, -1, 3, 7, \dots a_1 = -5$$

15. Create an equation to represent how to find any term in the sequence.

$$-6, -11, -16, -21, \dots a_1 = -6$$

16. Create an equation to represent how to find any term in the sequence.

$$3, 6, 12, 24, \dots a_1 = 3$$

17. Create an equation to represent how to find any term in the sequence.

$$1, -1, 1, -1, \dots a_1 = 1$$

18. Create an equation to represent how to find any term in the sequence.

$$4, 12, 36, 108, \dots a_1 = 4$$

Name: _____

ID: A

19. Simplify the following:

a. $\sqrt{12}$

b. $\sqrt{244}$

c. $\sqrt{5000}$

d. $\sqrt{60x^2}$

e. $\sqrt{117x^5y^3z}$

f. $\sqrt[3]{16}$

g. $\sqrt[4]{64}$

h. $\sqrt[3]{81x^4y^3z^2}$

REVIEW:

SHOW ALL OF YOUR WORK

DO BEAUTIFUL WORK

CIRCLE YOUR FINAL ANSWER

PUT YOUR ANSWERS TO MULTIPLE CHOICE QUESTIONS ON THE BLANK PROVIDED

STAY CLASSY

Parallel lines and Sequences

C 1. Write an equation of the line that passes through $(-5, -1)$ and is parallel to the line $y = 4x - 6$.

a. $y = 4x + 19$

b. $y = 4x - 6$

c. $y = -5x + 19$

d. $y = -5x - 6$

$y = 4x - 6$
 $-1 = 4(-5) + b$
 $-1 = -20 + b$
 $b = 19$

A B 2. Write an equation of the line that goes through the point $(3, 7)$ and is perpendicular to the line $y = -3x + 6$.

a. $y = \frac{1}{3}x + 6$

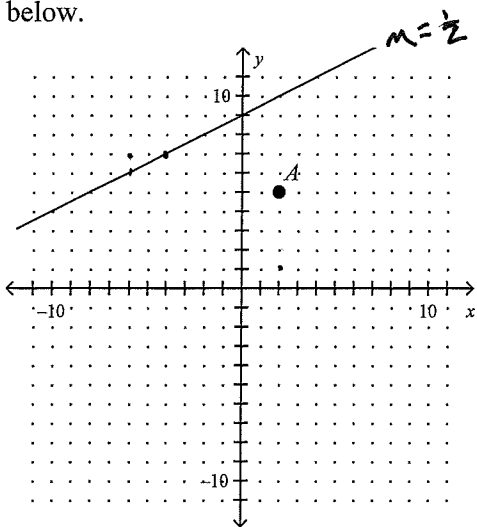
b. $y = -\frac{1}{3}x + 6$

c. $y = 3x + 2$

d. $y = -3x + 16$

$-3 \perp m = \frac{1}{3}$
 $7 = 3(\frac{1}{3}) + b$
 $7 = 1 + b$
 $6 = b$

A. 3. Find the equation of the line that passes through point A and is perpendicular to the line shown in the graph below.



$m = \frac{1}{2}$
 $m = -2$
 $(2, 5)$
 $5 = -2(2) + b$
 $5 = -4 + b$
 $9 = b$

$y = -2x + 9$

a. $y = -2x + 9$

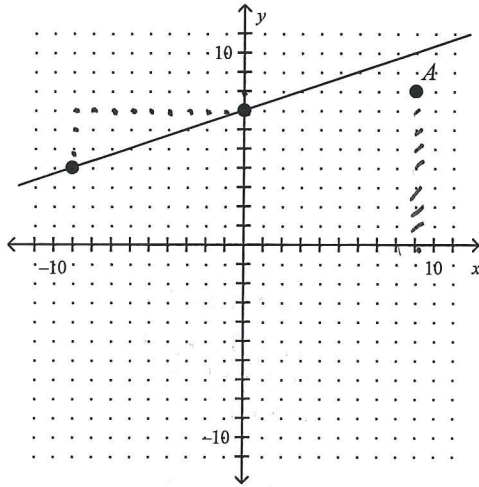
b. $y = \frac{1}{2}x - 9$

c. $y = \frac{1}{2}x + 9$

d. $y = -2x - 9$

A

4. Find the equation of the line that is parallel to the line in the graph and passes through point A.



$$\frac{3}{9} = \frac{1}{3}$$

$$(9, 8)$$

$$8 = \frac{1}{3}(9) + b$$

$$8 = 3 + b$$

$$-3 \quad -3$$

$$5 = b$$

$$y = \frac{1}{3}x + 5$$

a. $y = \frac{1}{3}x + 5$

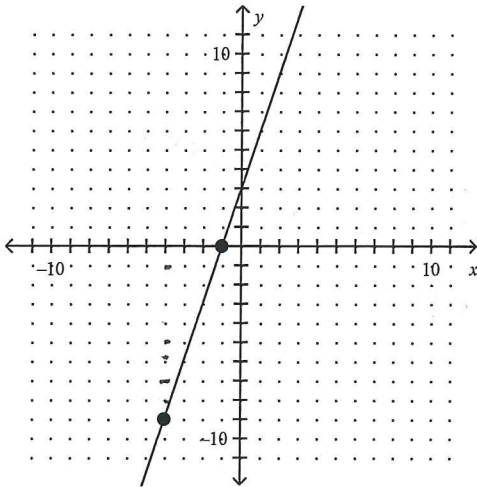
c. $y = -\frac{1}{3}x + 7$

b. $y = 3x + 5$

d. $y = 3x + 7$

~~A~~
A

5. Which of the following lines is NOT parallel to the line shown in the graph?



$$\frac{9}{3} = 3$$

$$m = 3$$

a. $3x + y = 3$ $y = -3x + 3$

c. $-12x + 4y = 9$

b. $y - 3x = 9$

d. $3x - y = 3$
 $-3x \quad -3x$

A

6. Which pair of lines could be perpendicular when graphed?

a. $y = 3, x = 5$

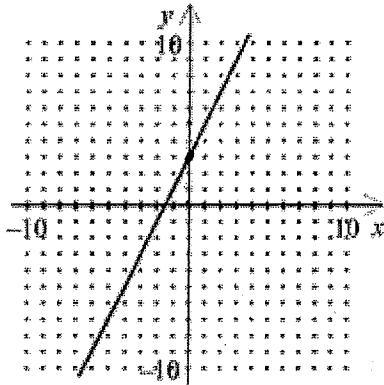
c. $y = 2x, y = \frac{1}{2}x$

b. $x = 4, y = x$

d. $y = 3, y = x$

A

7. The line $y = 2x + 3$ is graphed below.

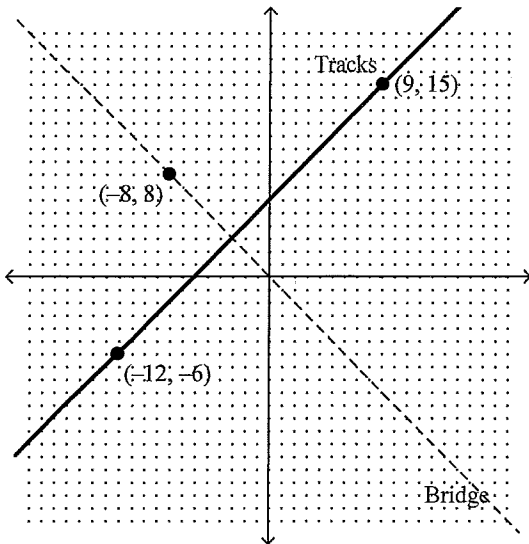


$$\begin{aligned}
 2y - 4x &= 6 \\
 +4x &+ 4x \\
 \hline
 2y &= 4x + 6 \\
 \frac{2y}{2} &= \frac{4x + 6}{2} \\
 y &= 2x + 3
 \end{aligned}$$

Are the lines $y = 2x + 3$ and $2y - 4x = 6$ parallel, perpendicular, neither parallel nor perpendicular, or the same line?

- a. the same line
- b. neither parallel nor perpendicular
- c. perpendicular
- d. parallel

8. A pedestrian bridge is to be built over railroad tracks running through a town. The bridge will be perpendicular to the tracks and the middle of the bridge will be directly above the tracks. If the town is represented on a coordinate grid, the tracks are a straight line running through $(9, 15)$ and $(-12, -6)$, with one end of the bridge at $(-8, 8)$.



Skip!

What are the coordinates of the other end of the bridge?

- a. $(2, -2)$
- b. $(-3, 3)$
- c. $(0, 0)$
- d. $(3, -3)$

9. Write an equation of the line that passes through $(7, -8)$ and is parallel to the line $y = 4x + 5$.

$$\begin{aligned}
 -8 &= 4(7) + b \\
 -8 &= 28 + b \\
 -24 &= 28 + b \\
 -36 &= b
 \end{aligned}$$

$$y = 4x - 36$$

10. Write an equation of the line that passes through $(-18, -4)$ and is parallel to the line $y = \frac{1}{3}x + 3$.

$$-4 = \frac{1}{3}(-18) + b$$

$$-4 = -6 + b \quad b = 2$$

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

11. Which of the following lines are parallel to each other?

$$\begin{array}{l} \textcircled{2x - 6y = 3} \quad 6x + 2y = 3 \quad \textcircled{-2x + 6y = 3} \\ \hline -6y = -2x + 3 \quad 2y = -6x + 3 \quad 6y = 2x \\ \hline y = \frac{1}{3}x + \frac{1}{2} \quad y = -3x + \frac{3}{2} \end{array}$$

12. Write an equation of the line that passes through $(4, 0)$ and is perpendicular to the line $y = \frac{1}{5}x + 1$.

$$0 = 4(-5) + b \quad m = -5$$

$$0 = -20 + b \quad y = -5x + 20$$

$$20 = b$$

13. Create an equation to represent how to find any term in the sequence.

$$1, 3, 5, 7, \dots \quad a_1 = 1 \quad a_n = 1 + 2(n-1)$$

14. Create an equation to represent how to find any term in the sequence.

$$-5, -1, 3, 7, \dots \quad a_1 = -5$$
~~$$a_n = -5 + 4(n-1)$$~~

$$a_n = -5 + 4(n-1)$$

15. Create an equation to represent how to find any term in the sequence.

$$-6, -11, -16, -21, \dots \quad a_1 = -6 \quad a_n = -6 - 5(n-1)$$

16. Create an equation to represent how to find any term in the sequence.

$$3, 6, 12, 24, \dots \quad a_1 = 3 \quad a_n = 3 \cdot 2^{(n-1)}$$

17. Create an equation to represent how to find any term in the sequence.

$$1, -1, 1, -1, \dots \quad a_1 = 1 \quad a_n = 1 \cdot (-1)^{(n-1)}$$

18. Create an equation to represent how to find any term in the sequence.

$$4, 12, 36, 108, \dots \quad a_1 = 4$$

$$a_n = 4 \cdot 3^{(n-1)}$$

19. Simplify the following:

a. $\sqrt{12}$ $(2\sqrt{3})$

Handwritten work: Prime factorization of 12: $2 \cdot 2 \cdot 3$. One pair of 2s is circled, leaving a 3 under the radical.

b. $\sqrt{244}$ $(2\sqrt{61})$

Handwritten work: Prime factorization of 244: $2 \cdot 2 \cdot 61$. One pair of 2s is circled, leaving a 61 under the radical.

c. $\sqrt{5000}$ $(50\sqrt{2})$

Handwritten work: Prime factorization of 5000: $2 \cdot 2 \cdot 2 \cdot 5 \cdot 5 \cdot 5 \cdot 5$. Two pairs of 5s and one pair of 2s are circled, leaving a 50 under the radical.

d. $\sqrt{60x^2}$ $(2x\sqrt{15})$

Handwritten work: Prime factorization of 60: $2 \cdot 2 \cdot 3 \cdot 5$. One pair of 2s is circled, leaving a 15 under the radical. The x^2 term is also circled, leaving an x outside the radical.

e. $\sqrt{117x^5y^3z}$ $(3x^2y\sqrt{13xyz})$

Handwritten work: Prime factorization of 117: $3 \cdot 3 \cdot 13$. One pair of 3s is circled, leaving a 13 under the radical. The x^5 term is broken into $x^2 \cdot x^2 \cdot x$, with two pairs of x s circled, leaving an x outside. The y^3 term is broken into $y \cdot y \cdot y$, with one pair of y s circled, leaving a y outside. The z term is circled, leaving a z outside.

f. $\sqrt[3]{16}$ $(2\sqrt[3]{2})$

Handwritten work: Prime factorization of 16: $2 \cdot 2 \cdot 2 \cdot 2$. Three 2s are circled, leaving one 2 under the cube root.

g. $\sqrt[4]{64}$ $(2\sqrt[4]{2})$

Handwritten work: Prime factorization of 64: $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$. Four 2s are circled, leaving one 2 under the 4th root.

h. $\sqrt[3]{81x^4y^3z^2}$ $(3xy\sqrt[3]{3xz^2})$

Handwritten work: Prime factorization of 81: $3 \cdot 3 \cdot 3 \cdot 3$. Three 3s are circled, leaving one 3 under the radical. The x^4 term is broken into $x \cdot x \cdot x \cdot x$, with three x s circled, leaving one x outside. The y^3 term is circled, leaving a y outside. The z^2 term is circled, leaving a z^2 under the radical.

