

## Algebra 1

Parallel, Perpendicular or Neither

Name \_\_\_\_\_

- To decide if lines are parallel or perpendicular, first write the lines in \_\_\_\_\_ form, which is \_\_\_\_\_.
- Parallel lines have slopes that are \_\_\_\_\_.
- Perpendicular lines have slopes that are \_\_\_\_\_.

State whether the lines are parallel, perpendicular, or neither.

1.  $y = 6x - 3$   
 $y = -\frac{1}{6}x + 7$

2.  $y = 3x + 2$   
 $2y = 6x - 6$

3.  $8x - 2y = 3$   
 $x + 4y = -1$

4.  $3x + 2y = 5$   
 $3y + 2x = -3$

5.  $y - 5 = 6x$   
 $y - 6x = -1$

6.  $y = 3x + 9$   
 $y = \frac{1}{3}x - 4$

7.  $y = x + 3$   
 $y = -x - 5$

8.  $y = 6$   
 $x = -2$

9.  $3y = -x$   
 $3x = y$

10. Decide if the lines are perpendicular:  $y = \frac{1}{3}x - 10$  and  $y = 3x$ . YES /NO, Why?

11. Which of the following lines is parallel to  $y = -\frac{5}{7}x + 2$ ?

- A)  $y + \frac{5}{7}x = -5$       B)  $y = \frac{5}{7}x + 6$       C)  $y = -\frac{7}{5}x - 3$       D)  $y - \frac{5}{7}x = 9$

12. A line parallel to  $y = \frac{2}{3}x - 7$  is \_\_\_\_\_.

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

13. A line parallel to  $y = \frac{1}{2}x + 3$  and passing through  $(0, 0)$  has the equation \_\_\_\_\_.

- A)  $y = \frac{1}{2}x$       B)  $y = \frac{1}{2}x + 6$       C)  $y = 2x$       D)  $y = \frac{1}{2}x - 3$

14. Consider the two equations:  $y = 2x + 3$  and  $y = 2x - \frac{1}{3}$ . The lines represented by these equations are parallel. Which statement explains why this is true?

A) The coefficients of  $x$  in the two equations are the same because they have the same slope.

B) The coefficients of  $y$  in the two equations are the same because they have the same slope.

C) Both equations have two terms to the right of the equal sign.

D) The constants in the two equations are reciprocals and have opposite signs.

15. Which is the slope of a line perpendicular to the line  $7x + y = 9$ ?

- A)  $-7$       B)  $\frac{1}{7}$       C)  $7$       D)  $-\frac{1}{7}$

**16.** Consider the two equations:  $y = \frac{1}{5}x - 6$  and  $y = -5x - 6$ . The lines represented by these equations are perpendicular. Which statement explains why this is true?

- A) The constants in the two equations are the same.
- B) Both equations are written in slope-intercept form.
- C) The coefficients of  $y$  in the two equations are the same because they have the same slope.
- D) The coefficients of  $x$  in the two equations are reciprocals and have opposite signs.

**17.** What best describes the relationship between the lines with equations  $y = 2x + 4$  and  $y = -2x + \frac{1}{4}$ ?

- A) perpendicular
- B) parallel
- C) same line
- D) neither parallel nor perpendicular

**18.** What best describes the relationship between the lines with equations  $y + 6 = -x$  and  $y + x = -6$ ?

- A) perpendicular
- B) parallel
- C) same line
- D) neither parallel nor perpendicular

**19.** What best describes the relationship between the lines with equations  $y + 3x = 10$  and  $2y = -6x + 4$ ?

- A) perpendicular
- B) parallel
- C) same line
- D) neither parallel nor perpendicular

**20.** What best describes the relationship between the lines with equations  $-x - 8y = 8$  and  $-16x + 2y = 0$ ?

- A) perpendicular
- B) parallel
- C) same line
- D) neither parallel nor perpendicular