

Name: _____

Date: _____

Class: _____

Solving Equations Involving Parallel and Perpendicular Lines Worksheet

Find the slope of a line that is parallel and the slope of a line that is perpendicular to each line whose equation is given.

1. $y = 4x + 2$

2. $y = 5 - 2x$

3. $2y = 3x - 8$

4. $6y - 5x = 0$

5. $\frac{1}{3}x - \frac{3}{8}y = 11$

6. $x = 4y + 7$

State whether the graphs of the following equations are parallel, perpendicular, or neither.

7. $x + y = 5$

$x + y = -10$

8. $x + y = 5$

$x - y = 5$

9. $y = 2x$

$y = 2x - 4$

10. $2y + 3x = 5$

$3y - 2x = 5$

11. $3x - 8y = 11$

$3x - 6y = 10$

12. $2y + 3x = 5$

$3y + 3x = 5$

13. $\frac{1}{3}x + \frac{2}{3}y = \frac{3}{5}$

$2x + 4y = 7$

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

$2x - 3y = 4$

Find an equation of the line that passes through each given point and is parallel to the line with the given equation.

15. $(4, 2)$; $y = 2x - 4$

17. $(\frac{1}{2}, \frac{1}{3})$; $x + 2y = 5$

16. $(3, 1)$; $y = \frac{1}{3}x + 6$

18. $(0, 0)$; $3x - y = 4$

Find an equation of the line that passes through each given point and is perpendicular to the line with the given equation.

19. $(-2, 0)$; $y = -3x + 7$

22. $(12, 6)$; $\frac{3}{4}x + \frac{1}{2}y = 2$

20. $(2, 5)$; $3x + 5y = 7$

21. $(0, -4)$; $6x - 3y = 5$

Find the value of "a" for which the graph of the first equation is perpendicular to the graph of the second equation.

23. $y = ax - 5$; $2y = 3x$

25. $y = \frac{a}{3}x - 6$; $4x + 2y = 6$

24. $y = ax + 2$; $3y - 4x = 7$

26. $3y + ax = 8$; $y = \frac{3}{4}x + 2$