

EXERCISES

Practice

Determine whether the graphs of each pair of equations are *parallel*, *coinciding*, *perpendicular*, or *none of these*.

12. $y = 5x - 18$

$2x + 10y + 10 = 0$

13. $y - 7x + 5 = 0$

$y - 7x - 9 = 0$

14. $y = \frac{1}{3}x + 11$

$y = 3x - 9$

15. $y = -3$

$x = 6$

16. $y = 4x - 3$

$4.8x - 1.2y = 3.6$

17. $4x - 6y = 11$

$3x + 2y = 9$

18. $y = 3x - 2$

$3x + y = 2$

19. $5x + 9y = 14$

$y = -\frac{5}{9}x + \frac{14}{9}$

20. $y + 4x - 2 = 0$

$y + 4x + 1 = 0$

21. Are the graphs of $y = 3x - 2$ and $y = -3x + 2$ *parallel*, *coinciding*, *perpendicular*, or *none of these*? Explain.

Write the standard form of the equation of the line that is parallel to the graph of the given equation and passes through the point with the given coordinates.

22. $y = 2x + 10$; $(0, -8)$

23. $4x - 9y = -23$; $(12, -15)$

24. $y = -9$; $(4, -11)$

Write the standard form of the equation of the line that is perpendicular to the graph of the given equation and passes through the point with the given coordinates.

25. $y = 5x + 12$; $(0, -3)$

26. $6x - y = 3$; $(7, -2)$

27. $x = 12$; $(6, -13)$

28. The equation of line ℓ is $5y - 4x = 10$. Write the standard form of the equation of the line that fits each description.

a. parallel to ℓ and passes through the point at $(-15, 8)$

b. perpendicular to ℓ and passes through the point at $(-15, 8)$

29. The equation of line m is $8x - 14y + 3 = 0$.

a. For what value of k is the graph of $kx - 7y + 10 = 0$ parallel to line m ?

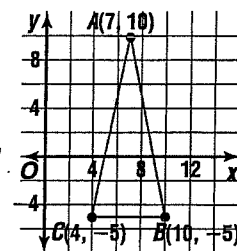
b. What is k if the graphs of m and $kx - 7y + 10 = 0$ are perpendicular?

30. **Critical Thinking** Write equations of two lines that satisfy each description.

a. perpendicular and one is vertical

b. parallel and neither has a y -intercept

31. **Geometry** An altitude of a triangle is a segment that passes through one vertex and is perpendicular to the opposite side. Find the standard form of the equation of the line containing each altitude of $\triangle ABC$.



Complete
Circled
Problems

★ SHOW ALL WORK ON
SEPARATE PAPER!

Applications and Problem Solving

