

ERROR ANALYSIS Describe and correct the error in writing an equation of the line that passes through the given point and has the given slope.

18. $(-4, 2), m = 3$

$$\begin{aligned} y - y_1 &= m(x - x_1) \\ y - 2 &= 3(x - 4) \\ y - 2 &= 3x - 12 \\ y &= 3x - 10 \end{aligned}$$

19. $(5, 1), m = -2$

$$\begin{aligned} y - y_1 &= m(x - x_1) \\ y - 5 &= -2(x - 1) \\ y - 5 &= -2x + 2 \\ y &= -2x + 7 \end{aligned}$$

EXAMPLE 3

on p. 99
for Exs. 20–26

PARALLEL AND PERPENDICULAR LINES Write an equation of the line that passes through the given point and satisfies the given condition.

20. $(-3, -5)$; parallel to $y = -4x + 1$

21. $(7, 1)$; parallel to $y = -x + 3$

22. $(2, 8)$; parallel to $y = 3x - 2$

23. $(4, 1)$; perpendicular to $y = \frac{1}{3}x + 3$

24. $(-6, 2)$; perpendicular to $y = -2$

25. $(3, -1)$; perpendicular to $y = 4x + 1$

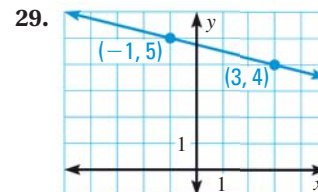
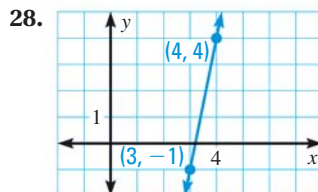
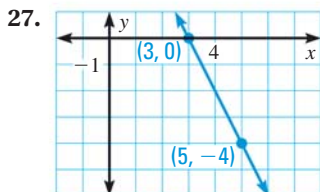
26. **TAKS REASONING** What is an equation of the line that passes through $(1, 4)$ and is perpendicular to the line $y = 2x - 3$?

- (A) $y = 2x + 2$ (B) $y = \frac{1}{2}x + \frac{7}{2}$ (C) $y = -\frac{1}{2}x + \frac{9}{2}$ (D) $y = -\frac{1}{2}x + 4$

EXAMPLE 4

on p. 100
for Exs. 27–38

VISUAL THINKING Write an equation of the line.



WRITING EQUATIONS Write an equation of the line that passes through the given points.

30. $(-1, 3), (2, 9)$

31. $(4, -1), (6, -7)$

32. $(-2, -3), (2, -1)$

33. $(0, 7), (3, 5)$

34. $(-1, 2), (3, -4)$

35. $(-5, -2), (-3, 8)$

36. $(15, 20), (-12, 29)$

37. $(3.5, 7), (-1, 20.5)$

38. $(0.6, 0.9), (3.4, -2.6)$

39. **TAKS REASONING** Which point lies on the line that passes through the point $(9, -5)$ and has a slope of -6 ?

- (A) $(6, 10)$ (B) $(6, 6)$ (C) $(7, 7)$ (D) $(6, -4)$

STANDARD FORM Write an equation in standard form $Ax + By = C$ of the line that satisfies the given conditions. Use integer values for $A, B,$ and C .

40. $m = -3, b = 5$

41. $m = 4, b = -3$

42. $m = -\frac{3}{2}$, passes through $(4, -7)$

43. $m = \frac{4}{5}$, passes through $(2, 3)$

44. passes through $(-1, 3)$ and $(-6, -7)$

45. passes through $(2, 8)$ and $(-4, 16)$

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