Determine whether the lines through each pair of points are parallel.
1) (2, 4) and (-14, -14); (6, 5) and (-2, -4)
2) (10, -7) and (2, 7); (8, -6) and (12, 1)

Determine whether the lines through each pair of points are perpendicular.
3) (5, 1) and (21, 21); (-7, 10) and (1, 20)
4) (-1, -3) and (3, -21); (-5, 8) and (-14, 6)

Determine whether the lines through each pair of points are parallel, perpendicular, or neither.
5) (3, -10) and (-17, -2); (-8, 9) and (-4, -1)
Find the slope of the line.
6) \( y = 7x \)

7) \( 7x + y = -32 \)

8) \( y = 9 - x \)

Find the y-intercept.
9) \( 5y = 4x \)

10) \( -3x + 8y = -7 \)

Graph the linear equation using the slope and y-intercept.
11) \( y = -3x - 3 \)
12) \( y = \frac{1}{4}x + 2 \)

13) \( y = -\frac{1}{2}x \)

Put the equation in slope-intercept form by solving for \( y \). Use the slope and \( y \)-intercept to graph the equation.

14) \( 6x + y = 0 \)
Interpret the linear equation.

16) When a tow truck is called, the cost of the service is given by the linear function \( y = 3x + 55 \), where \( y \) is in dollars and \( x \) is the number of miles the car is towed. Find and interpret the slope and \( y \)-intercept of the linear equation.

17) The amount of water in a leaky bucket is given by the linear function \( y = 127 - 8x \), where \( y \) is in ounces and \( x \) is in minutes. Find and interpret the slope and \( y \)-intercept of the linear equation.

18) The altitude above sea level of an airplane just after taking off from an airport on a high plateau is given by the linear function \( y = 600x + 3097 \), where \( y \) is in feet and \( x \) is the time in minutes since take-off. Find and interpret the slope and \( y \)-intercept.
Find the point-slope form of the equation of the line satisfying the given conditions and use this to write the slope-intercept form of the equation.

19) Slope = 5, passing through (3, 5)

20) Slope = -2, passing through (4, 3)

21) Slope = $-\frac{5}{2}$, passing through (4, -4)

22) Slope = $\frac{5}{3}$, passing through (0, 2)
23) Passing through (5, 24) and (2, 12)

24) Passing through (0, -8) and (-8, -18)

25) Passing through (-5, -4) and (-10, -3)

26) $x$-intercept $= \frac{5}{2}$ and $y$-intercept $= 2$
Find the slope.

27) Find the slope of a line parallel to the line $y = \frac{-7}{4}x + 6$.

28) Find the slope of a line perpendicular to the line $2x + 8y = 2$.

29) Find the slope of a line parallel to the line $y = -3$.

30) Find the slope of a line parallel to the line $x = -4$. 
Find an equation for the line with the given properties.

31) The solid line $L$ contains the point $(-2, 4)$ and is perpendicular to the dotted line whose equation is $y = 2x$. Give the equation of line $L$ in slope-intercept form.

Write an equation in slope-intercept form of the line satisfying the given conditions.

32) Passing through $(5, 4)$ and parallel to the line whose equation is $y = -6x$.

33) Passing through $(3, 3)$ and parallel to the line whose equation is $y = -7x + 2$. 
34) Passing through (4, 2) and perpendicular to the line whose equation is \( y = 7x \).

35) Perpendicular to the line \( x - 4y = 4 \); containing the point (-4, 4).

Solve the problem.

36) The graph below shows the average retail price of the least-expensive DVD player available at Mega Mart over the past few years. Use the two points whose coordinates are given to find the slope-intercept form of an equation that models the data.

![Graph showing average retail price of least-expensive DVD player]

Decide whether the ordered pair is a solution of the system of equations.

37) \( \begin{cases} x + 4y = -5 \quad ; \quad (-3, -2) \\ x - y = -1 \end{cases} \)
Solve the system of equations by graphing.

38) \[
\begin{aligned}
4x + y &= 3 \\
x - y &= -9 \\
\end{aligned}
\] \quad (3, 6)

39) \[
\begin{aligned}
4x &= 10 - y \\
x + 5y &= -26 \\
\end{aligned}
\] \quad (4, -6)

40) \[
\begin{aligned}
y &= x + 2 \\
y &= 3x + 8 \\
\end{aligned}
\]
41) \[
\begin{align*}
2x + y &= -5 \\
3x + y &= -7
\end{align*}
\]

42) \[
\begin{align*}
x + \frac{1}{4}y &= -2 \\
x &= -1
\end{align*}
\]

43) \[
\begin{align*}
x + 2y &= 0 \\
3x - 2y &= 8
\end{align*}
\]
Determine the number of solutions of the system. State whether the system is consistent or inconsistent. For a system that is consistent, state whether the equations are dependent or independent. State the solution of the system.

44)

45)

46)
Determine the value of the coefficient, \( c \), so that the given system of equations is dependent.

\[
\begin{align*}
3x + 4y &= 68 \\
 cx + 24y &= 408
\end{align*}
\]

\[ 48 \]

Solve the problem.

\[ 49 \] A couple have bought a new house and are comparing quotes from two moving companies for moving their furniture. Company A charges $120 for the truck and $40 per hour for the movers. Company B charges $110 for the truck and $60 per hour for the movers. Create a cost equation for each company where \( y \) is the total cost and \( x \) is the number of hours of labor. Write a system of equations.
1) parallel
2) not parallel
3) not perpendicular
4) perpendicular
5) neither
6) 7
7) - 7
8) -1
9) 0
10) -7/8

11) 

12) 

13) 

14)
14) The graph shows a linear relationship between $x$ and $y$.

15) The graph shows a linear relationship between $x$ and $y$.

16) \( m = 3 \); The cost of the service increases $3 every mile the car is towed. \( b = 55 \); The cost of the service is $55 if the car is not towed.

17) \( m = -8 \); The amount of water in the bucket decreases 8 ounces every minute. \( b = 127 \); At \( x = 0 \), the amount of water in the bucket was 127 ounces.

18) \( m = 600 \); The altitude of the airplane increases 600 feet every minute. \( b = 3097 \); The altitude of the airport where the airplane took-off is 3097 feet above sea level.

19) \( y = 5x - 10 \)

20) \( y = -2x + 11 \)

21) \( y = -\frac{5}{2}x + 6 \)

22) \( y = \frac{5}{3}x + 2 \)

23) \( y = 4x + 4 \)

24) \( y = \frac{5}{4}x - 8 \)

25) \( y = -\frac{1}{5}x - 5 \)

26) \( y = -\frac{4}{5}x + 2 \)

27) \( -\frac{7}{4} \)

28) 4
29) 0
30) undefined
31) $y = -\frac{1}{2}x + 3$
32) $y = -6x + 34$
33) $y = -7x + 24$
34) $y = -\frac{1}{7}x + \frac{18}{7}$
35) $y = -4x - 12$
36) $y = -25x + 194$
37) Yes
38) No
39) Yes
40) (-3, -1)
41) (-2, -1)
42) (-1, -4)
43) (2, -1)
44) one solution; consistent; independent; (2, 3)
45) infinitely many solutions; consistent; dependent
46) no solution; inconsistent
47) one solution; consistent; independent; (-6, 2)
48) 18
49) \[
\begin{align*}
y &= 40x + 120 \\
y &= 60x + 110
\end{align*}
\]