Evaluate each expression for \( a = 9, b = -3, c = -2, d = 7 \). Show your work.

<table>
<thead>
<tr>
<th></th>
<th>Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>( a - cd )</td>
</tr>
<tr>
<td>2</td>
<td>( 2b^3 + c^2 )</td>
</tr>
<tr>
<td>3</td>
<td>( \frac{a + d - c}{b} )</td>
</tr>
<tr>
<td>4</td>
<td>( (a - b)^2 + d(a + c) )</td>
</tr>
<tr>
<td>5</td>
<td>( 4c - (b - a) )</td>
</tr>
<tr>
<td>6</td>
<td>( \frac{a - 5a}{b} )</td>
</tr>
<tr>
<td>7</td>
<td>( 2bc + d(12 - 5) )</td>
</tr>
<tr>
<td>8</td>
<td>( b + 0.5[8 - (2c + a)] )</td>
</tr>
</tbody>
</table>

Simplify each expression, showing all work.

<table>
<thead>
<tr>
<th></th>
<th>Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>( (15 + 8d)(-5) - 24d + d )</td>
</tr>
<tr>
<td>10</td>
<td>( 9(b - 1) - c + 3b + c )</td>
</tr>
<tr>
<td>11</td>
<td>( 8(h - 4) - h - (h + 7) )</td>
</tr>
</tbody>
</table>

Solve each equation, show all work.

<table>
<thead>
<tr>
<th></th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>( f - 6 = -2f + 3(f - 2) )</td>
</tr>
<tr>
<td>13</td>
<td>( -9g - 3 = -3(3g + 2) )</td>
</tr>
<tr>
<td>14</td>
<td>( 5(3x - 2) = 5(4x + 1) )</td>
</tr>
<tr>
<td>15</td>
<td>( 3d - 4 + d = 8d - (-12) )</td>
</tr>
<tr>
<td>16</td>
<td>( -2(y - 1) = 4y - (y + 2) )</td>
</tr>
<tr>
<td>17</td>
<td>( -2(5d - 8) = 20 )</td>
</tr>
</tbody>
</table>
Find the slope of the line that passes through the points. Show your work.

18. (-5, 3) (2, 1)  
19. (8, 4) (11, 6)  
20. (9, 3) (9, -1)  
21. (-4, -2) (-6, 4)

Find the rate of change. Show your work.

22.  

<table>
<thead>
<tr>
<th>Number of Hours</th>
<th>3</th>
<th>6</th>
<th>9</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance (in miles)</td>
<td>135</td>
<td>270</td>
<td>405</td>
<td>540</td>
</tr>
</tbody>
</table>

23.  

<table>
<thead>
<tr>
<th>Number of Weeks</th>
<th>1</th>
<th>3</th>
<th>5</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pounds</td>
<td>173</td>
<td>169</td>
<td>165</td>
<td>161</td>
</tr>
</tbody>
</table>

Find the slope of the line.

24.  

25.  

26.  

Graph the line.

27.  \[ y = \frac{1}{4}x \]  
28.  \[ y = -\frac{3}{2}x - 2 \]  
29.  \[ y = -x - 3 \]
Circle the correct answer:

a) James had \(d\) dollars in his bank account. He spent $22 but has at least $28 left. How much money did he have originally? Write and solve an inequality for this situation.

\[
\begin{align*}
(1) \ d - 22 & > 28; \ d > 50 \\
(2) \ d + 22 & \geq 28; \ d \geq 72 \\
(3) \ d + 22 & \leq 28; \ d \leq 72 \\
(4) \ d - 22 & \geq 28; \ d \geq 50
\end{align*}
\]

b) Which inequality has the same solution as \(n > 5\)?

\[
\begin{align*}
(1) \ n & < -5 \\
(2) \ n & < 5 \\
(3) \ 5 & < n \\
(4) \ -n & > -5
\end{align*}
\]

c) Solve \(-12 + n > 20\).

\[
\begin{align*}
(1) \ n & < 32 \\
(2) \ n & > 32 \\
(3) \ n & < 8 \\
(4) \ n & > 8
\end{align*}
\]

d) Solve \(2x - 8 > 4x + 2\).

\[
\begin{align*}
(1) \ x & < -5 \\
(2) \ x & > -5 \\
(3) \ x & < 5 \\
(4) \ x & > 5
\end{align*}
\]

e) Solve \(-5n + 16 \leq -7n\).

\[
\begin{align*}
(1) \ n & \leq -8 \\
(2) \ n & \geq -8 \\
(3) \ n & \leq 8 \\
(4) \ n & \geq 8
\end{align*}
\]

f) What is the least whole number solution of \(k \geq -5\)?

\[
\begin{align*}
(1) \ -5 & \\
(2) \ -4 & \\
(3) \ 0 & \\
(4) \ 1
\end{align*}
\]

g) Which value makes the inequality \(x^2 \geq x\) false?

\[
\begin{align*}
(1) \ -\frac{1}{4} & \\
(2) \ 0 & \\
(3) \ \frac{1}{4} & \\
(4) \ 1
\end{align*}
\]

h) Which value below is a solution of neither \(-3x - 7 \geq 8\) nor \(-2x - 11 \leq -31\)?

\[
\begin{align*}
(1) \ -6 & \\
(2) \ 0 & \\
(3) \ 10 & \\
(4) \ 16
\end{align*}
\]
Solve each system by graphing.

31. \( y = -5x + 5 \)
   \( y = -x - 3 \)

32. \( x - y = 3 \)
   \( 2x - y = 5 \)

Solve the following systems algebraically.

33. \( 5x - y = -5 \)
    \( x - y = 3 \)

34. \( 5x - 4y = 1 \)
    \( 7x + 4y = 11 \)

35. \( 7x + 2y = -4 \)
    \( 3x + 6y = 24 \)
Solve each system by graphing.

36. \( x > 3 \)
   \( 2x + 4y \geq 12 \)

37. \( 4x - 5y < -20 \)
   \( 3x + 2y \geq 6 \)

38. \( y < 5x + 2 \)
   \( y > -2x - 3 \)

Assume each pair of figures is similar. Find the missing side length, showing all work.
Determine whether or not you can form a right triangle from the given side lengths. Explain.

45. 18, 22, 26

46. 5, 12, 13

47.

Simplify each expression:

a) \((5a^3b^5)^4 = \) __________

b) \((x^{-3}y^4)^{-2} = \) __________

c) \((c^2d)^{-3} = \) __________

d) \(\frac{a^2}{b^3}^{5} = \) __________

e) \(y^{-13} = \) __________

f) \(\frac{m^8n^3}{y^{-8}} = \) __________
49. The solution to \(4p + 2 < 2(p + 5)\) is
   (1) \(p > -6\)    (3) \(p > 4\)
   (2) \(p < -6\)    (4) \(p < 4\)

50. The box plot below summarizes the data for the average monthly high temperatures in degrees Fahrenheit for Orlando, Florida.

   The third quartile is
   (1) 92    (3) 83
   (2) 90    (4) 71

51. Joy wants to buy strawberries and raspberries to bring to a party. Strawberries cost $1.60 per pound and raspberries cost $1.75 per pound. If she only has $10 to spend on berries, which inequality represents the situation where she buys \(x\) pounds of strawberries and \(y\) pounds of raspberries?

   (1) \(1.60x + 1.75y \leq 10\)    (3) \(1.75x + 1.60y \leq 10\)
   (2) \(1.60x + 1.75y \geq 10\)    (4) \(1.75x + 1.60y \geq 10\)

52. A function is defined as \([(0,1), (2,3), (5,8), (7,2)]\). Isaac is asked to create one more ordered pair for the function. Which ordered pair can he add to the set to keep it a function?

   (1) \((0,2)\)    (3) \((7,0)\)
   (2) \((5,3)\)    (4) \((1,3)\)

53. The amount Mike gets paid weekly can be represented by the expression \(2.50a + 290\), where \(a\) is the number of cell phone accessories he sells that week. What is the constant term in this expression and what does it represent?

   (1) \(2.50a\), the amount he is guaranteed to be paid each week
   (2) \(2.50a\), the amount he earns when he sells \(a\) accessories
   (3) \(290\), the amount he is guaranteed to be paid each week
   (4) \(290\), the amount he earns when he sells \(a\) accessories

54. Solve the equation below algebraically for the exact value of \(x\).

   \[6 - \frac{2}{3}(x + 5) = 4x\]

55. Caleb claims that the ordered pairs shown in the table below are from a nonlinear function.

<table>
<thead>
<tr>
<th>(x)</th>
<th>(f(x))</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
</tr>
</tbody>
</table>

State if Caleb is correct. Explain your reasoning.
56. What is the solution to the system of equations below?
\[ y = 2x + 8 \]
\[ 3(-2x + y) = 12 \]
(1) no solution  
(2) infinite solutions  
(3) (-1,6)  
(4) \(\frac{1}{2},9\) 

57. A mapping is shown in the diagram below.

This mapping is:
(1) a function, because Feb has two outputs, 28 and 29
(2) a function, because two inputs, Jan and Mar, result in the output 31
(3) not a function, because Feb has two outputs, 28 and 29
(4) not a function, because two inputs, Jan and Mar, result in the output 31

58. Jordan works for a landscape company during his summer vacation. He is paid $12 per hour for mowing lawns and $14 per hour for planting gardens. He can work a maximum of 40 hours per week, and would like to earn at least $250 this week. If \(m\) represents the number of hours mowing lawns and \(g\) represents the number of hours planting gardens, which system of inequalities could be used to represent the given conditions?

(1) \(m + g \leq 40\)
\(12m + 14g \geq 250\)

(2) \(m + g \geq 40\)
\(12m + 14g \leq 250\)

(3) \(m + g \leq 40\)
\(12m + 14g \leq 250\)

(4) \(m + g \geq 40\)
\(12m + 14g \geq 250\)

59. The heights, in inches, of 12 students are listed below.

61, 67, 72, 62, 65, 59, 60, 79, 60, 61, 64, 63

Which statement best describes the spread of these data?
(1) The set of data is evenly spread.
(2) The median of the data is 59.5.
(3) The set of data is skewed because 59 is the only value below 60.
(4) 79 is an outlier, which would affect the standard deviation of these data.

60. Graph the inequality \(y + 4 < -2(x - 4)\) on the set of axes below.