Evaluate the expression.
1. \(8 + a\) when \(a = 5\)
2. \(27 - h\) when \(h = 21\)
3. \(\frac{p}{4}\) when \(p = 16\)
4. \(7 + y^2\) when \(y = 3\)
5. \(\frac{2m + 9}{m}\) when \(m = 2\)
6. \(\frac{3x}{x - 1}\) when \(x = 3\)

Translate the verbal phrase into an expression.
7. 10 more than \(\frac{1}{2}\) of a number \(r\)
8. Twice a number \(d\)
9. The difference of 19 and \(r\)
10. The sum of a number \(p\) and the square of a number \(b\)
Quiz 2
For use after Lessons 1.4–1.5

Write an equation or an inequality.
1. The sum of twice a number \(d\) and 3 is 12.
2. Six less than four times a number \(j\) is 18.
3. The product of 8 and a number \(q\) is at least 32.
4. The difference of 10 and a number \(w\) is no more than 8.

In Exercises 5–8, check whether the given number is a solution of the equation or inequality.
5. \(z - 4 = 9; 12\)
6. \(2x - 9 \geq 11; 10\)
7. \(k - 8.2 < 10; 18\)
8. \(4d + 1 < 13; 3\)

9. What is the interest on $950 invested for 4 years in an account that earns simple interest at a rate of 3% per year?

10. A car travels 210 miles in 3.5 hours. What is the average speed of the car?

Answers
1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

Algebra 1
Chapter 1 Assessment Book
Quiz 3
For use after Lessons 1.6–1.7

Identify the domain and range of the function.
1. | Input | Output |
   | 0     | 1      |
   | 2     | 5      |
   | 4     | 9      |
   | 6     | 13     |
2. | Input | Output |
   | 1     | 2      |
   | 2     | 5      |
   | 3     | 8      |
   | 4     | 11     |

Tell whether the pairing is a function.
3. | Input | Output |
   | 2     | 10     |
   | 4     | 7      |
   | 6     | 3      |
   | 8     | 2      |
4. | Input | Output |
   | 3     | 5      |
   | 4     | 7      |
   | 5     | 9      |
   | 6     | 11     |

Graph the function.
5. \( y = x - 2 \); Domain: 2, 3, 4, 5, 6
6. \( y = \frac{1}{2}x + 3 \); Domain: 0, 2, 4, 6, 8

In Exercises 7–9, use the graph at the right.
7. Write a rule for the function represented by the graph.
8. Identify the domain of the function.
9. Identify the range of the function.
Evaluate the expression.
1. \(12 - q\) when \(q = 8\)
2. \(3x\) when \(x = 9\)
3. \(w^3\) when \(w = 2\)
4. \(\frac{24}{t}\) when \(t = 4\)

Write the power as a product.
5. \(10^4\)
6. \((2.6)^3\)
7. \(n^b\)

8. The height of a horse is often measured in hands. You can estimate the height (in inches) of a horse by using the expression \(4h\), where \(h\) is the number of hands. How tall is a horse that measures 14 hands?

Evaluate the expression.
9. \(12 \div 3 - 1\)
10. \(15 - 7 \cdot 2\)
11. \(2 + 2^3 + 4\)
12. \(5(3^2 - 4)\)

Translate the verbal phrase into an algebraic expression.
13. The sum of a number \(x\) and 9
14. Six less than a number \(w\) squared
15. The number of quarters in \(d\) dollars

Write an equation or an inequality.
16. Three more than twice a number \(b\) is equal to 13.
17. The product of 5 and a number \(k\) is less than 60.

Check whether the given number is a solution of the equation or the inequality.
18. \(10x - 3 = 27; \, 3\)
19. \(4y - 1 \geq 20; \, 4\)
20. \(2x + 1 < 17; \, 8\)
21. \(4a - 7 = 3a - 4; \, 3\)
22. A bicycle travels at an average speed of 15 miles per hour. How many miles does the bicycle travel in 1.5 hours?
Tell whether the pairing is a function.

23. | Input | Output |
    | 0     | 3      |
    | 5     | 7      |
    | 10    | 7      |
    | 15    | 11     |

24. | Input | Output |
    | 1     | 12     |
    | 2     | 6      |
    | 3     | 1.5    |

Make a table for the function. Identify the range of the function.

25. $y = 2x + 1$
   Domain: 0, 1, 2, 3

<table>
<thead>
<tr>
<th>Input, $x$</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Output, $y$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. $y = 20 - 3x$
   Domain: 0, 2, 4, 6

<table>
<thead>
<tr>
<th>Input, $x$</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Output, $y$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

27. The table shows the height $H$ (in feet) of an object as a function of the time $t$ (in seconds) after being thrown vertically upward. Graph the function.

<table>
<thead>
<tr>
<th>Time elapsed, $t$</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height, $H$</td>
<td>6</td>
<td>23</td>
<td>28</td>
<td>24</td>
<td>18</td>
<td>13</td>
</tr>
</tbody>
</table>
**Chapter Test B**

For use after Chapter 1

Evaluate the expression.

1. $34.5x$ when $x = 4$
2. $\frac{1}{3} \times $ when $y = \frac{9}{10}$

Evaluate the power.

3. $5^4$
4. $1^7$
5. $\left(\frac{1}{2}\right)^5$

6. You can convert temperatures in degrees Fahrenheit to degrees Celsius by using the expression $\frac{9}{5}C + 32$, where $C$ is the temperature (in degrees Celsius). Convert $35°C$ to degrees Fahrenheit.

Evaluate the expression.

7. $16 ÷ (4 - 2) - 3$
8. $3[15 - (2^3 - 6)^2]$

Evaluate the expression for the given values of the variables.

9. $3m - n$ when $m = 5$ and $n = 4$
10. $2u^2 + v$ when $u = 3$ and $v = 7$

11. A rectangular box is created by cutting out squares of equal sizes of lengths $x$ from a piece of cardboard 10 inches by 15 inches and folding up the sides as shown in the figure. The volume of the box is given by $V = x(10 - 2x)(15 - 2x)$. Find the volume of the box when the side length of the square is 3 inches.

![Diagram of a rectangular box created by cutting out squares of equal sizes of lengths $x$ from a piece of cardboard 10 inches by 15 inches and folding up the sides.]

Write an algebraic expression, an equation, or an inequality.

12. The quotient of the square of a number $t$ and 14
13. Amount you earn if you make 6.5 dollars an hour for $h$ hours
14. The product of 6 and the quantity 2 more than a number $x$ is at least 45.
15. The sum of 4 and the quotient of a number $k$ and 9 is 12.
Check whether the given number is a solution of the equation or the inequality.

16. \( 7z + 8 > 20; \) 2

17. \( \frac{z}{2} + 15 = 20; \) 25

18. A carpet outlet advertises a price of $470.40 to carpet a 12-foot by 16-foot room. If a customer was given a price of $725.20 for carpeting a room that is 16 feet wide, what is the length of the room?

Write a rule for the function.

19.

<table>
<thead>
<tr>
<th>Input, ( x )</th>
<th>1</th>
<th>3</th>
<th>5</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output, ( y )</td>
<td>2</td>
<td>6</td>
<td>10</td>
<td>14</td>
</tr>
</tbody>
</table>

20.

<table>
<thead>
<tr>
<th>Input, ( x )</th>
<th>12</th>
<th>15</th>
<th>18</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output, ( y )</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

Find the range of the function. Then graph the function.

21. \( y = \frac{1}{2}x + 3 \)

Domain: 0, 1, 2, 3, 4

22. \( y = x - 6 \)

Domain: 10, 12, 14, 16, 18
Evaluate the expression for the given value of the variable.

1. \( n^3 \) when \( n = \frac{2}{3} \)

2. \( \frac{y}{2} \) when \( x = 6 \) and \( y = \frac{1}{2} \)

3. You can estimate your distance (in miles) from a thunderstorm by using the expression \( \frac{r}{40} \), where \( r \) is the number of seconds between seeing the lightning and hearing the thunder. How far away is the thunderstorm, if 24 seconds after you see the lightning you hear the thunder?

Evaluate the expression.

4. \( [15 + (5^2 \cdot 2)] \div 13 \)

5. \( \frac{(37 - 26)^2 - 6}{32 + 2^3 - (4^2 - 13)} \)

Evaluate the expression.

6. \( 8 + 4(q - 3) + q \) when \( q = 6 \)

7. \( \frac{2m - n}{m^2 - 2n + 2} \) when \( m = 5 \) and \( n = 3 \)

8. The formula for the area of a trapezoid is one-half the product of the sum of the bases times the height. Find the area of the trapezoid below.

[Diagram of a trapezoid with bases labeled 14 cm and 6 cm]

Write an equation or an inequality.

9. The quotient of a number \( x \) and 11 is at least 2 less than the number \( x \).

10. The product of 5 and a number \( n \) plus 7 is fewer than the quotient of the number \( n \) and 2.

11. Three times the sum of 4 and a number \( y \) squared is the same as the difference of 14 and the number \( y \).

12. The quotient of the difference of a number \( w \) cubed and 9 and 3 is more than the difference of 12 and the product of 2 and the number \( w \).

Check whether the given number is a solution of the equation or inequality.

13. \( \frac{x - 1}{2} + 5 > x + 1; \ 8 \)

14. \( 3(x - 7) = 19 - x; \ 10 \)
15. Your aunt wants to spend at most $800 on a video camera and video-tapes. She plans to buy the camera for $695 and tapes for $5.75 each. Can she buy 20 videotapes?

16. You invested $1500 in a bank account for 5 years and received $150 in interest. What was the annual simple interest rate for the account?

17. At a yard sale, you find a number of paperback books by your favorite author. You have $10 and each book is priced at $.75. Write a rule for the amount of money you have left as a function of the number of books you buy. Then use the grid below to graph the function.

18. Make a table for the function. Identify the range of the function. Then graph the function.

\[ y = \frac{1}{3}x - 1 \]

Domain: 12, 15, 21, 30

19. \[ y = \frac{x + 2}{4} \]

Domain: 0, 2, 4, 6

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Algebra 1
Chapter 1 Assessment Book