1. Graph the numbers on a number line: 7, $\frac{3}{5}$, 4, 10, 8, −6. (Lesson 1.1)

Evaluate the expression for the given value of the variable. (Lesson 1.2)

2. $5c + 1$ when $c = 2$
3. $(t - 3)^2 + 1$ when $t = 4$

4. Look for a pattern in the table. Then write an equation that represents the table. (Lesson 1.5)

<table>
<thead>
<tr>
<th>$x$</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

Tell whether the relation is a function. (Lesson 2.1)

5. $(-3, 2), (-1, 3), (1, 3), (2, 4)$
6. $(-1, 1), (2, -3), (-2, 5), (-3, -6)$

The variables $x$ and $y$ vary directly. Write an equation that relates $x$ and $y$. Then find $y$ when $x = 4$. (Lesson 2.5)

7. $x = 3, y = 6$
8. $x = 12, y = 3$

Graph the linear system and estimate the solution. Then check the solution algebraically. (Lesson 3.1)

9. $y = x + 3$
   $y = 2x - 1$
10. $y = 3x + 4$
    $y = x - 1$

Evaluate the determinant of the matrix. (Lesson 3.7)

11. $\begin{bmatrix} 5 & -1 \\ 6 & 2 \end{bmatrix}$
12. $\begin{bmatrix} 2 & -3 & 4 \\ 1 & 1 & 0 \\ 3 & -2 & 2 \end{bmatrix}$
13. $\begin{bmatrix} 6 & 2 & -4 \\ -3 & 1 & -2 \\ 5 & 3 & 1 \end{bmatrix}$

Write the quadratic function in standard form. (Lesson 4.2)

14. $y = (x + 2)(x + 1)$
15. $y = (x - 3)^2 + 1$

Use the quadratic formula to solve the equation. (Lesson 4.8)

16. $x^2 - x - 6 = 0$
17. $2j^2 - 9j + 4 = 0$

Use direct substitution to evaluate the polynomial function for the given value of $x$. (Lesson 5.2)

18. $f(x) = 2x^5 - 4x^3 + x - 3; x = 1$
19. $f(x) = -3x^2 + 2x + 1; x = -2$

List the possible rational zeros of $f$ using the rational zero theorem. (Lesson 5.6)

20. $f(x) = x^3 + 3x^2 - 5x + 6$
21. $f(x) = 3x^3 + 2x^2 - 6x + 18$
Let \( f(x) = 0.5x \), \( g(x) = -x^2 \), and \( h(x) = 2x \). Find the indicated value. (Lesson 6.3)

22. \( f(f(-4)) \)  
23. \( g(f(3)) \)  
24. \( g(h(2)) \)

Graph the function. State the domain and range. (Lesson 7.1)

25. \( f(x) = 3^x + 1 \)  
26. \( g(x) = 2^x - 1 - 1 \)

Expand the expression. (Lesson 7.5)

27. \( \log_2 10x^2 \)  
28. \( \log_3 \frac{8x}{7} \)

Tell whether \( x \) and \( y \) show direct variation, inverse variation, or neither. (Lessons 8.1)

29. \( x = \frac{y}{6} \)  
30. \( x = y + 2 \)  
31. \( xy = 7 \)

Graph the equation. Identify the radius of the circle. (Lesson 9.3)

32. \( x^2 + y^2 = 121 \)  
33. \( 4y^2 = -4x^2 + 4 \)  
34. \( x^2 + y^2 = 100 \)

Find the number of distinguishable permutations of the letters in the word. (Lesson 10.1)

35. PICNIC  
36. STATISTICS

Find the number of combinations. (Lesson 10.2)

37. \( 4C_3 \)  
38. \( 8C_4 \)  
39. \( 7C_0 \)

Use the binomial theorem to write the binomial expression. (Lesson 10.2)

40. \( (r + 3)^4 \)  
41. \( (x^2 - 2y)^3 \)

You randomly choose a marble from a bag. The bag contains 5 white, 3 red, and 2 blue marbles. Find the indicated odds. (Lesson 10.3)

42. In favor of choosing blue  
43. Against choosing red

Events \( A \) and \( B \) are independent. Find the indicated probability. (Lesson 10.5)

44. \( P(A) = 0.25 \)  
45. \( P(A) = \_\_\_\_\_\_ \)  
46. \( P(A) = 0.9 \)

\( P(B) = 0.3 \)  
\( P(B) = 0.4 \)  
\( P(B) = \_\_\_\_\_\_ \)

\( P(A \text{ and } B) = \_\_\_\_\_\_ \)  
\( P(A \text{ and } B) = 0.2 \)  
\( P(A \text{ and } B) = 0.81 \)

Calculate the probability of tossing a coin six times and getting the given number of tails. (Lesson 10.6)

47. \( 2 \)  
48. \( 0 \)  
49. \( 5 \)