1. Solve the following equations. For some of these problems, the answers are not integers. Give your answer as a decimal rounded to two decimal places.

(a) \( x^2 = 4 \) \hspace{1cm} (b) \( \sqrt{x} = 3 \)

(c) \( x^2 + 3 = 5 \) \hspace{1cm} (d) \( 3x^2 - 5 = 2 \)

(e) \( 3\sqrt{x} - 1 = 12 \) \hspace{1cm} (f) \( 2\sqrt{2x} - 1 = 10 \)
2. The area of a square is 49. Determine the length of one side of the square.

3. The area of a circle is 32. Determine the length of the radius of the circle.
4. In the following triangle, $a = 5$ and $c = 13$. Determine the value of $b$. 

5. A pizza place has two sizes of pizza, medium and large. The medium size has a diameter of 12 inches; the large size has a diameter 16 inches. Do you get more total pizza by purchasing two medium pizzas or one large pizza?
6. Multiply the following polynomials, and then simplify your answer.

(a) $(x + 1)(x + 3)$

(b) $(x - 2)(x + 5)$

(c) $(x - 1)^2$

(d) $(x - 4)(x + 4)$

(e) $(x + y)(x - 3y)$

(f) $(x + 1)(y + 3)$

(g) $x(x + 3)(x + 1)$

(h) $(x + 1)(x^2 + 3x + 1)$
7. Factor the following polynomials:

(a) $x^2 + 5x$

(b) $x^2 + 8x + 15$

(c) $x^2 - 5x + 6$

(d) $x^2 + 3x - 4$

8. Solve the following equations:

(a) $(x - 3)(x + 5) = 0$

(b) $(x + 2)(x - 7) = 0$

(c) $x^2 + 9x + 20 = 0$

(d) $x^2 - 7x + 12 = 0$
9. Solve the following equations:
   
   (a) \( x^2 - 10x + 16 = 0 \)  
   (b) \( x^2 - x - 6 = 0 \)  
   (c) \( x^2 = 6x - 9 \)  
   (d) \( x^2 + 3x = 10 \)

10. Find all solutions to the following system of equations:

\[
\begin{align*}
3x + y &= 5 \\
x^2 + 2y &= 1
\end{align*}
\]

*Hint:* First, solve the first equation for \( y \), and then substitute the result into the second equation.