Inclass Activity 10.5-10.6

Determine whether the graph will open up or down, find the coordinates of the vertex, find the line of symmetry, find the x-intercepts and graph each.

1. \( y = (x - 1)^2 + 2 \)
   a. Opens:
   b. Find the vertex
   c. Find the line of symmetry
   d. Determine the x-intercepts by solving \((x - 1)^2 + 2 = 0\)
   e. Graph the function

2. \( y = x^2 - 2x - 3 \)
   a. Opens:
   b. Find the vertex
   c. Find the line of symmetry
   d. Determine the x-intercepts by solving \(x^2 - 2x - 3 = 0\)
   e. Graph the function

3. \( y = -x^2 + 3 \)
   a. Opens:
   b. Find the vertex
   c. Find the line of symmetry
   d. Determine the x-intercepts by solving \(-x^2 + 3 = 0\)
   e. Graph the function
4. \( y = (x+3)^2 - 4 \)
   a. Opens:
   
   b. Find the vertex
   
   c. Find the line of symmetry
   
   d. Determine the \( s \)-intercepts by solving \( (x+3)^2 - 4 = 0 \)
   
   e. Graph the function

5. \( y = 2x^2 + 4x - 6 \)
   a. Opens:
   
   b. Find the vertex
   
   c. Find the line of symmetry
   
   d. Determine the \( s \)-intercepts by solving \( 2x^2 + 4x - 6 = 0 \)
   
   e. Graph the function

6. The cost in dollars of producing \( x \) items is modeled by the quadratic function \( C(x) = 500 - 24x + 1.5x^2 \).
   a. What is the cost of producing 25 items?
   
   b. How many items should be produced to minimize the cost?
   
   c. What is the minimum cost?