Using an equation above in standard form to find out many characteristics of the parabola!

a) Direction of the parabola:__________________

b) Y-intercept:_______________________

c) Axis of symmetry:__________________

d) Vertex:______________________

e) X-intercepts:________________________

Identify \( a, b \) and \( c \), the direction and the y-intercept.

1) \( 2x^2 - 3x + 5 = y \)  
2) \( y = 4x^2 - 7x - 6 \)  
3) \( -x^2 - 4 = y \)

\[ a____b____c_____ \quad a____b____c_____ \quad a____b____c_____ \]

direction______________  
y-int______________
For the following equations, the vertex using the formula $x = \frac{-b}{2a}$.

4) $x^2 + 4x - 4 = y$
   
   a______ b______ c_____  
   
   5) $2x^2 - 8x - 3 = y$
   
   a______ b______ c_____  
   
   Vertex_________________  
   
   Vertex_________________

Find the x-intercepts for the following equations. Try factoring first and if it doesn’t, use the quadratic formula.

6) $x^2 + 6x + 8 = y$
   
   a______ b______ c_______  
   
   7) $2x^2 - 3x - 4 = y$
   
   a______ b______ c_______  
   
   x-intercepts: ________________  
   
   x-intercepts: ________________
Put it all together! Graph the following quadratics.

8) $x^2 + 6x + 8 = y$

a_____ b_____ c_____

direction__________

axis of symmetry______________

Vertex______________

y-intercept______________

x-intercepts______________

9)

a_____ b_____ c_____

direction__________

axis of symmetry______________

Vertex______________

y-intercept______________

x-intercepts______________
Accurately graph each quadratic function:

1. \( f(x) = -x^2 + 4x + 4 \)
   
   A. Vertex: ( , )
   
   B. Y-intercept:
   
   C. X-intercepts:
   
   D. 3 points besides vertex, y-intercept, x-intercept:

2. \( f(x) = x^2 - 4x - 5 \)
   
   A. Vertex: ( , )
   
   B. Y-intercept:
   
   C. X-intercepts:
   
   D. 3 points besides vertex, y-intercept, x-intercept:
3. \( f(x) = (x + 1)^2 - 5 \)

A. Write in standard form:

B. Vertex: \((, )\)

C. Y-intercept:

D. X-intercepts:

E. 3 points besides vertex, y-intercept, x-intercept:

Evaluate each of the following expressions, given:

\[ f(x) = x^2 - 4x - 5 \quad g(x) = -x^2 + 4x + 4 \]

4. \( g(-2) \) 

5. \( f(-2) \)

6. \( f(g(3)) \)

7. \( g \circ f(-1) \)
Solve each equation either by factoring or using the quadratic formula:

1. \( x^2 - 4x - 5 = 0 \) 
2. \( x^2 - 3x + 2 = 0 \) 

3. \( x^2 - x - 8 = 0 \) 
4. \( 2x^2 + x - 1 = 0 \) 

5. \( x^2 - 3x - 10 = 0 \) 
6. \( 3x^2 - 8x - 17 = 0 \)