Review: Quadratics Review and Graphing

1. **Expand the following expressions**

   a) $(x - 3)(x + 5)$ b) $(x - 8)^2$ c) $2(x + 4)(x - 6)$

2. **Evaluate each equation for y when x = -2**

   a) $y = x^2 + 3x - 5$ b) $y = -2x^2 + 5x - 1$ c) $y = 3(x - 3)(x - 1)$

3. **Fully factor each expression.**

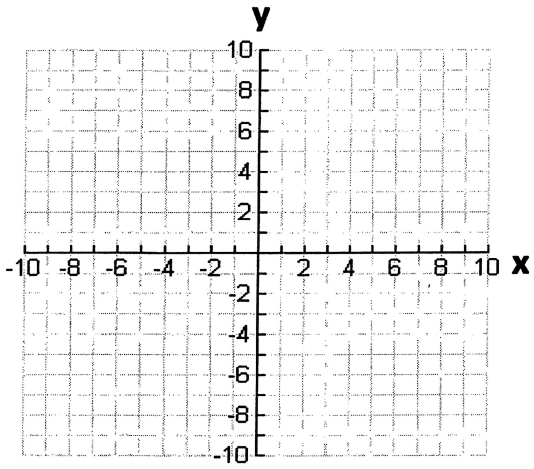
   a) $5x^2 - 35x$ b) $x^2 - 11x + 30$ c) $100 - x^2$

   d) $3x^2 + 9x - 12$ e) $9x^2 - 9$ f) $x^2 + 2x - 24$

4. **Complete the table of values and graph the function. Label and write the equation of the axis of symmetry and the optimal value.**

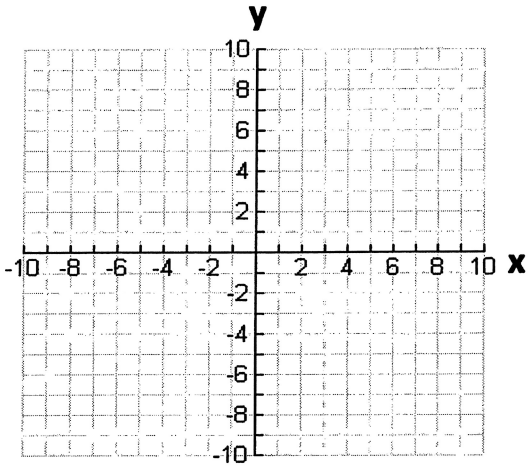
a) $y = 2x^2 - 4x - 1$

x	y
-1	
0	
1	
2	
3	



b) $y = -x^2 - 4x - 1$

x	y
-4	
-3	
-2	
-1	
0	



5. **For each quadratic equation below, determine the x-ints, the y-int, and the vertex.**

a) $y = x^2 + 4x - 5$

b) $y = -x^2 - 6x - 5$

6. The height of a flare that is launched from a cruise ship is given by the equation: $h = -5t^2 + 30t + 35$ where h is the height of the flare 'above the water' in metres and t is the time in seconds after launch.

a) Determine the h-intercept, the t-intercepts, and vertex. Use this information to sketch a graph of the height vs time.

b) When was the flare at its highest point and how high above the water did it reach?

c) What is the height of the cruise ship? Hint: What is the height of the flare at the time it is launched (when t = 0)?

d) How long did it take until the flare came down and landed in the water?