1. Given the following equations, answer the questions that follow:
   a. $y = 2(x - 7)^2 - 8$

      What form is this in?

      What is the vertex (no calc)?

      What is the y-intercept?

      What are the x-intercepts, if any?

   b. $y = -2(x + 5)(x - 3)$

      What form is this in?

      What is the vertex?

      What is the y-intercept?

      What are the x-intercepts, if any (no calc)?

2. Solve.
   a. $\sqrt{x - 24} = \sqrt{x} - 4$

   b. $16x^2 - 81 = 0$

3. Solve.
   a. $5^{x+4} = 49$

   b. $\log_4(x + 2) + \log_4 5 = \log_4 70$

   c. $\log_2(x - 6) - \log_2 5 = \log_2 3$

4. Simplify the following:

   a. $\sqrt{108}$ b. $\sqrt{-150}$ c. $\sqrt{(-6)^2 - 4(-2)(-17)}$

5. Use the given factors to divide. Find the remaining roots.
$$f(x) = x^4 - 6x^3 - 96x - 256; (x-8) \ and \ (x+2)$$

6. Perform the indicated operation. Write an equivalent expression in reduced form. Don't forget to list restrictions.

   a. $\dfrac{\frac{x^2+7x-60}{3x^2-15x}}{\frac{x^2+5x-84}{x^3-7x^2}}$ b. $\dfrac{8}{2x-10} - \dfrac{10}{3x-15}$

7.   Given the picture, list the following:

   a. Degree

   b. End behaviors   L: R:

   c. #Relative Max

   d. #Relative Min

   e. L.C. + or −

   f. Give an example equation that could represent the graph