1. [10 pts. each] Solve each equation.

   (a) $6x^2 = 11x + 7$ (by factoring)

   (b) $2x^2 - 4x = 3$ (by completing the square)

   (c) $x^3 - 125 = 0$ (by factoring)

2. [15 pts.] The volume of a 14-oz box of Commodore Munch cereal is 182.742 cubic inches. The width of the box is 3.1875 inches less than the length, and its depth is 2.3125 inches. Find the length and width of the box to the nearest thousandth.

3. [15 pts.] Now retired, Commodore Munch plans to replace the vinyl floor in his 10-ft by 12-ft kitchen. He wants to have a border of even width that is made of a special material. He's willing to pay for only 21 square feet of this material. How wide a border can he have?

4. [10 pts. each] Solve each equation.

   (a) $\dfrac{x}{x-4} = \dfrac{4}{x-4} + 4$

   (b) $\dfrac{4x}{x-2} + \dfrac{3}{x} = \dfrac{-6}{x^2-2x}$

   (c) $\sqrt{2x+3} = x + 2$

   (d) $3 - \sqrt{x} = \sqrt{2\sqrt{x} - 3}$

   (e) $x^4 - 3x^2 - 4 = 0$

   (f) $|2x + 9| = |3 - x|$

5. [10 pts. each] Solve each inequality. Write each solution set in interval notation.

   (a) $6x - (2x + 3) \geq 3x - 5$

   (b) $-3 < \dfrac{x-1}{3} < 2$

   (c) $6x^2 - 11x < 10$

   (d) $2x^3 - 3x^2 - 5x \leq 0$

   (e) $\dfrac{10}{2x-3} \leq 5$

   (f) $|8x - 3| > 5$

   (g) $|10x - 3| \leq -2$

6. [10 pts.] Find the distance between the points $P(-3, 8)$ and $Q(6, -2)$.

7. [10 pts.] For the equation $y = \sqrt{x + 2}$, give a table with three ordered pairs that are solutions.

8. [10 pts.] Write $x^2 - 12x + y^2 + 10y = -25$ in Center-Radius form, then give the center and radius of the circle.

9. [10 pts.] Suppose that receiving stations X, Y, and Z are located on a coordinate plane at the points $(7, 4)$, $(-9, -4)$, and $(-3, 9)$, respectively. The epicenter of an earthquake is determined to be 5 units from X, 13 units from Y, and 10 units from Z. At what coordinates is the epicenter located?