Problem Set 2

1. A company that produces telephones has determined that the monthly fixed cost is $12,000 and it costs $30 to manufacture each telephone. Use this information to answer the following questions.

   - Write a function that represents the average cost per telephone.

   - Determine an appropriate domain for the function.

   - As the number of telephones the company produces increases, what does the average cost become?

2. A scientist is studying the temperature in a certain region of a remote planet. She approximates the temperature, T in degrees Celsius in that region x years after the planet's origin to be the following

$$T = \frac{3x^2 - 13x + 8}{x^2 - 4x + 8}.$$

   In what year was the temperature the coolest? What was the coolest temperature? Does the temperature of the planet ever level off? If so, what does the temperature tend to?