4. (6 points) A circus is planning to visit your hometown. They claim to have a mummy that is 15,000 years old, but the citizens of your town are suspicious. The town council is given a sample of the mummy for a carbon-14 analysis. Your old high school science teacher is able to find that 33% of the mummy's carbon-14 remains. Using the fact that the half-life of carbon-14 is 5,730 years, determine the age of the mummy that the circus is bringing to town. [Show your work!]

5. (3 points each) The marketing department of Lay's Potato Chips decides to do a study on the number of chips a person craves as a function of the number of chips already eaten by that person. Their function turns out to be the rational function

$$C(x) = \frac{2x^2}{(x-1)^2},$$

where $C(x)$ is the number of additional chips a person who has eaten x chips is still craving to eat.

(a) How is Lay's famous slogan "You can't eat just one" summarized by this equation?

(b) What is the horizontal asymptote of $C(x)$? What does this say about a person with an unlimited supply of chips who can't control his/her cravings?