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

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

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?

