

## Compound Interest and Exponential Models

You buy a car for \$15,000 and for tax purposes you depreciate it at a rate of 11% per year.

- (a) At the end of 24 months, what is the value of the car?
- (b) At the end of 5 years, what is the value of the car?
- (c) Find the exponential equation that gives the value of the car after  $t$  years.
- (d) Does the value of the car ever reach \$0?

An article in *The New York Times* on April 6, 2011 soon after the Fukushima disaster discussed levels of radioactive iodine (iodine 131) in fish caught near Japan. The article noted that Japan recently revised the safety limit for iodine 131 in fish to 2,000 becquerels per kilogram. (A becquerel is a measure of radiation.)

Radioactive iodine has a half-life of about 8 days.

If a fish contained 10,000 becquerels of iodine 131 per kilogram, how long would it take for the iodine to decay to a “safe” level?