Data Analysis for Modeling Nuclear Decay

Name: _____   Teacher: _____   Date: _____

On a sheet of graph paper, draw intersecting x- and y-axes with the origin located in the bottom left corner.

Label the y-axis: Radioactive "dice-ium" atoms

Label the x-axis: Time (years) *Each "Toss" value, indicated in the first column of the data table (student handout), is equivalent to one year.*

Plot the points from the data table as an ordered pair (x,y).
- The 'x' is equal to the year value.
- The 'y' is equal to the number of radioactive "dice-ium" atoms.
- *EXAMPLE:* The FIRST point would be (0, 24). Time = 0 years and all 24 radioactive "dice-ium" atoms remain.

Draw a smooth, best-fit CURVE through the data points.

Find the point on the y-axis where the remaining radioactive "dice-ium" atoms is exactly one-half of the atoms at Time = 0 minutes. (HINT: What is half of 24?)

Starting at the one-half value on the y-axis, draw a line parallel to the x-axis until the line reaches the best-fit curve.

When the parallel line reaches the curve, draw a vertical line DOWN to the x-axis.

The point where the vertical line touches the x-axis is the half-life of radioactive "dice-ium" atoms in years.