Name:_____ Date:_____ Class/Period:_____

Linear Regression Activity

The table below shows the number of small specimen-BMD scanners in the United States from 1998 to 2004.

| Year	1998	1999	2000	2001	2002	2003	2004
Small Specimen BMD Scanners	5	8	13	21	33	52	80

a. **Linearize the data. That is, make a table with x- and y-values, where x is the number of years since 1998 and y is the number of BMD scanners. Then make a scatter plot of the linearized data.**

Subtract 1998 from each year (your x) and find the natural logarithm of each BMD scanner quantity.

x							
$\ln y$							

The scatter plot suggests that there may be a linear relationship between x and $\ln y$. Plot your points here and be sure to label and scale your axis.
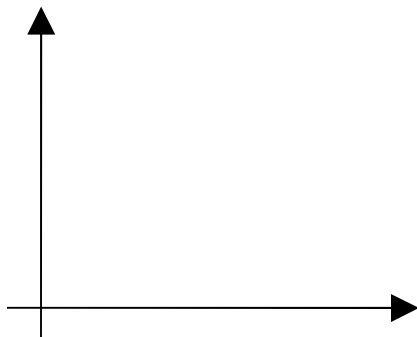
b. **Find a regression equation for the linearized data.**

Use **LinReg(ax+b)** on the **STAT CALC** screen to find the linear regression equation. **LinReg**

$y =$

$a =$

$b =$

$r^2 =$

$r =$

Write out linear equation:

c. Use the linear regression equation to find an exponential model for the original data.

To find a model solve the regression equation in part **b** for y.

d. Use the exponential model to predict the number of BMD scanners there will be in 2015. Does this prediction make sense?