Name: _____

1 The accompanying table shows the number of new cases reported by the Nassau and Suffolk County Police Crime Stoppers program for the years 2000 through 2002.

010730b

| Year ($x$) | New Cases ($y$) |
|---|---|
| 2000 | 457 |
| 2001 | 369 |
| 2002 | 353 |

If $x = 1$ represents the year 2000, and $y$ represents the number of new cases, find the equation of best fit using a power regression, rounding all values to the *nearest thousandth*.
Using this equation, find the estimated number of new cases, to the *nearest whole number*, for the year 2007.

2 Water is draining from a tank maintained by the Yorkville Fire Department. Students measured the depth of the water in 15-second intervals and recorded the results in the accompanying table.

010831b

| Time ($x$) (in seconds) | Depth of Water ($y$) (in feet) |
|---|---|
| 15 | 11.8 |
| 30 | 9.9 |
| 45 | 8.2 |
| 60 | 6.3 |
| 75 | 5.9 |

Write the power regression equation for this set of data, rounding all values to the *nearest ten thousandth*. Using this equation, predict the depth of the water at 2 minutes, to the *nearest tenth of a foot*.

Name: _____

3 fall9934b The volume of a particular gas was determined at various pressures. *P* is the pressure (in atmospheres) and is the independent variable on the horizontal axis, and *V* is the volume (in liters) and is the dependent variable on the vertical axis. Create a scatter plot and find the equation of the curve of best fit. (Round answer constants to *nearest tenth*) and then, using the regression equation found, estimate *V* if *P* = 2.5.

| P | V |
|---|---|
| 0.1 | 225 |
| 0.3 | 74.999 |
| 0.5 | 45 |
| 0.7 | 32.139 |
| 0.9 | 25 |
| 1.1 | 20.45 |
| 1.5 | 15 |
| 1.7 | 13.24 |
| 1.9 | 11.84 |
| 2.1 | 10.71 |
| 2.3 | 9.78 |