**1 16.4 Assignment Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Using Technology to Determine a Linear Regression Equation**

**1.** The following table shows the yearly cost of tuition at a private four-year college.

|  |  |
| --- | --- |
| **School Year** | **Cost of Tuition**  **(in dollars)** |
| 2003 | 20,294 |
| 2004 | 20,952 |
| 2005 | 21,481 |
| 2006 | 22,243 |
| 2007 | 22,881 |
| 2008 | 23,344 |
| 2009 | 23,973 |
| 2010 | 24,588 |
| 2011 | 25,531 |

**a.** Because the *x*-coordinates represent time, we can define time as the number of years since 2003. So, 2003 would become 0. What number would you use for 2010?

**b.** Write the ordered pairs from the table.

**c.** Use a graphing calculator to determine the linear regression equation. Round the values of the slope and *y*-intercept to the nearest dollar.

**d.** Why is it more appropriate to round the slope and *y*-intercept of the linear regression equation in part (c) to the nearest dollar instead of to the nearest cent?

**e.** What is the correlation coefficient for your linear regression equation? Does this indicate a positive or negative correlation?

**f.** What is the slope of your linear regression equation? What does the slope mean in this problem situation?

**g.** Use your linear regression equation to predict the cost of tuition in 2015. Show your work.

**h.** Use your linear regression equation to determine in which year the cost of tuition will be $35,000. Show your work.

**16.**