Name: _____ Date: _____ Per: _____

Linear Regression: Super Bowl Ad Cost and Future Predictions

Consider the following data in the table to the right that shows the cost for a 30-second commercial during the previous Super Bowls.

Super Bowl number	Year	Cost of 30-second commercial
I	1967	$40,000
II	1968	$54,000
III	1969	$67,500
IV	1970	$78,200
V	1971	$72,000
VI	1972	$86,000
VII	1973	$103,500
VIII	1974	$107,000
IX	1975	$110,000
X	1976	$125,000
XI	1977	$162,000
XII	1978	$185,000
XIII	1979	$222,000
XIV	1980	$275,000
XV	1981	$324,300
XVI	1982	$345,000
XVII	1983	$400,000
XVIII	1984	$450,000
XIX	1985	$500,000
XX	1986	$550,000
XXI	1987	$575,000
XXII	1988	$600,000
XXIII	1989	$675,000
XXIV	1990	$700,000
XXV	1991	$800,000
XXVI	1992	$800,000
XXVII	1993	$850,000
XXVIII	1994	$900,000
XXIX	1995	$1,000,000
XXX	1996	$1,100,000
XXXI	1997	$1,200,000
XXXII	1998	$1,300,000
XXXIII	1999	$1,600,000
XXXIV	2000	$2,100,000
XXXV	2001	$2,050,000
XXXVI	2002	$1,900,000
XXXVII	2003	$2,100,000
XXXVIII	2004	$2,250,000
XXXIX	2005	$2,400,000
XL	2006	$2,500,000
XLI	2007	$2,600,000
XLII	2008	$2,700,000
XLIII	2009	$3,000,000
XLIV	2010	$2,800,000
XLV	2011	$3,000,000
XLVI	2012	$3,500,000
XLVII	2013	$3,800,000
XLVII	2014	$4,000,000

Based on the data, please supply the following:

1) On a **piece of graph paper carefully construct** a graph showing the relationship of cost of a commercial and the year.

2) Describe the relationship between the year and the cost.

On a separate piece of paper provide the following:

3) Create and present a linear regression equation based on the data. *(Note: You will have to adjust for the fact that your graphing calculator will not complete the regression using the 4 digit years.)*

4) Interpret the slope of your equation from number 3.

5) Interpret the y-intercept from your equation from number 3.

6) Interpret the correlation of the regression.

6) Using your equation, predicted the cost of the 30 second advertisement on the Super Bowl for the next year (2015).

7) Using your equation, what would you expect a 30-second commercial to cost for during Super Bowl C (Super Bowl 100)?

8) Using your equation, in what year would you expect the 30-second commercial cost to reach $6 million?

9) Pretend we are in 2004. Create a new regression equation using only the data up through 2004. Use that line to predict the cost of the advertisements in 2014. What would the prediction be? How wrong would it have been?