NAME _____ DATE _____ PERIOD _____

Linear Regression · 5.5 Paper Practice

Example 1

1. **SOCCER** The table shows the number of goals a soccer team scored each season since 2010. Let *x* be the number of years since 2010.

Year	2010	2011	2012	2013	2014	2015
Goals Scored	48	52	50	46	48	42

a. Write the equation for the best-fit line for the data.

b. Find and interpret the correlation coefficient.

2. **REVENUE** The table shows the estimated revenue earned for ringtone and ringback purchases, in millions of dollars, each year since 2010.

Year	2010	2011	2012	2013	2014	2015	2016
Revenue ($)	448	276.2	166.9	97.9	66.3	54.5	40.1

a. Write the equation for the best-fit line for the data.

b. Find and interpret the correlation coefficient.

3. **SALES** The table shows the sales of major health and beauty supply company, in millions of dollars, for several years. Let *x* be the number of years since 2010.

Year	2011	2012	2013	2014	2015
Sales	12.2	19.1	29.4	37.3	45.7

a. Write the equation for the best-fit line for the data.

b. Find and interpret the correlation coefficient.

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4. **PURCHASING** A supermarket chain closely monitors how many bottles of sunscreen it sells each year so that it can reasonably predict how many bottles to stock in the following year. Let *x* be the number of years since 2010.

Year	2013	2014	2015	2016	2017
Bottles of Sunscreen	60,200	65,000	66,300	65,200	70,600

a. Find the equation for the best-fit line for the data.

b. How many bottles of sunscreen should the supermarket expect to sell in 2025?

5. **GOLD** Ounces of gold are traded by large investment banks in commodity exchanges much the same way that shares of stock are traded. The table below shows the cost of a single ounce of gold on the last day of trading in given years. Let *x* be the number of years since 2000.

Year	2002	2004	2006	2008	2010	2012	2014
Price	$342.75	$435.60	$635.70	$869.75	$1420.25	$1664.00	$1199.25

a. Find the equation for the best-fit line for the data.

b. According to the equation, what would be the price of an ounce of gold on the last day of trading in 2030?

6. **PERSEVERE** The table shows the number of participants in high school athletics.

Years Since 1980	0	10	20	25	30
Number of Athletes	5,356,913	5,298,671	6,705,223	7,159,904	7,667,955

a. Find an equation for the regression line.

b. According to the equation, how many participated in 2008?