Section 4.5 – 4.6: Linear Regression
Practice Worksheet
Honors Algebra I

Name: _____Key_____

Date: _____

Instructions: *Create a scatter plot, find the linear regression equation (line of best fit), determine the correlation, and then make a prediction.*

1. The table below gives the amount of time students in a class studied for a test and their test scores.
   Graph the data on a scatter plot, find the line of best fit, and write the equation for the line you draw.

Hours Studied	1	0	3	1.5	2.75	1	0.5	2
Test Score	78	75	90	89	97	85	81	80

Linear Regression Equation: $y = 5.43x + 76.4$
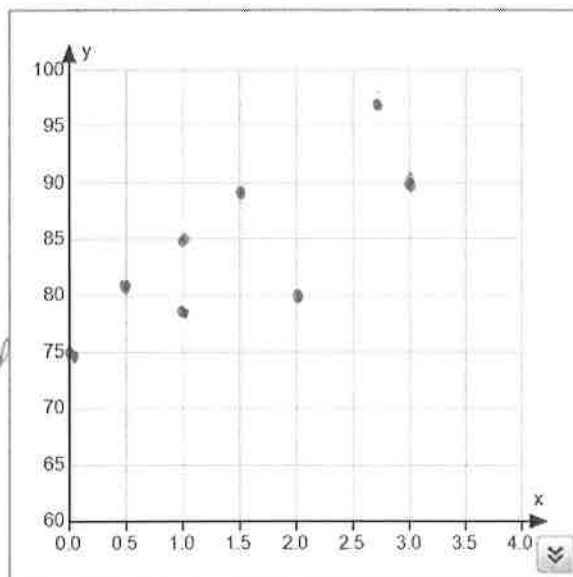
Correlation Coefficient (r): 0.79

Type of Correlation: positive

Is the correlation strong? Explain

yes, 0.5 - 1.0 is considered strong

Using the linear regression equation predict
a students test score if they studied for 4 hours.

98

2. The table below gives the amount of Krabby Patties made by Spongebob for each year he's worked.
   Graph the data on a scatter plot, find the line of best fit, and write the equation for the line you draw.

Years worked	1	2	3	4	5	6
Patties made	6,500	7,805	10,835	11,230	15,870	16,387

Linear Regression Equation: $y = 2115x + 4035$
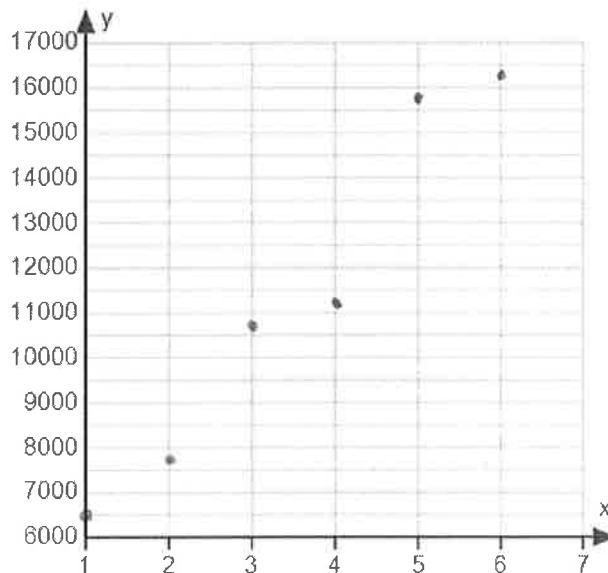
Correlation Coefficient (r): 0.98

Type of Correlation: positive

Is the correlation strong? Explain

yes. 0.98 is very close to 1

Using the linear regression equation predict
how many Krabby Patties he will make after
working 10 years.

25,185

3. The table below gives the estimated world population (in billions) for various years.

Year	1980	1990	1997	2000	2005	2011
Population	4400	5100	5852	6080	6450	7000

Linear Regression Equation: $y = 84.9X + 63766$
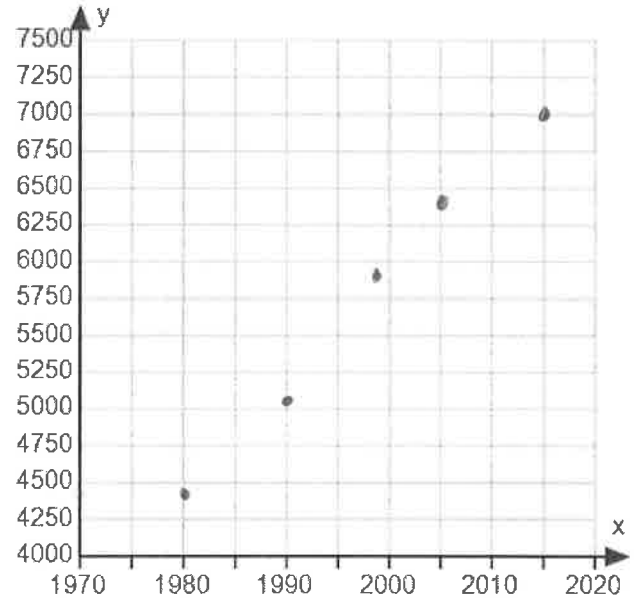
Correlation Coefficient (r): 0.998

Type of Correlation: positive

Is the correlation strong? Explain

yes, 0.998 is almost 1.

Using the linear regression equation predict the world population in the year 2015.

7327.9 billions

4. The table below shows the income for an employee over his first 8 years of work. Use this to estimate his income for his 15th year of work.

Years	1	2	3	4	5	6	7	8
Income	45,000	46,814	48,212	52,870	54,125	58,532	61,075	62,785

Linear Regression Equation: $y = 2714X + 41461$

Correlation Coefficient (r): 0.992

Type of Correlation: positive

Is the correlation strong? Explain

yes. 0.992 is close to 1

Using the linear regression equation predict his income for his 15th year of work.

$82178.5