Honors Algebra 1
5.7 – Interpreting with Linear Models

Name:
Period: Key

Example 1

The table shows the number of people who have attended a neighborhood festival in Chicago over an 8 year period.

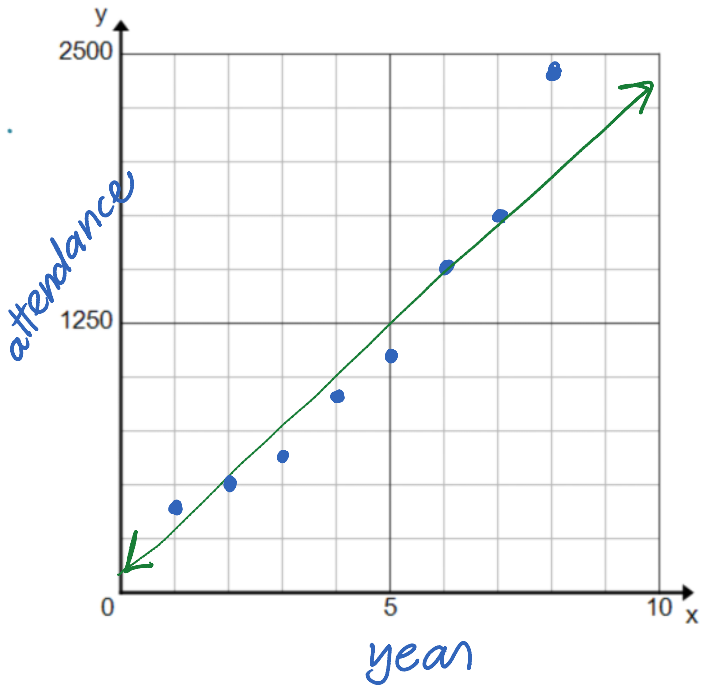
Year, *x*	1	2	3	4	5	6	7	8
Attendance, *y*	420	500	650	900	1100	1500	1750	2400

a) Identify the independent and dependent variables.

Independent: year

Dependent: attendance

b) Label your axes and then make a scatter plot.



c) Is the correlation positive, negative, or none?

positive

d) Write a sentence to describe the correlation

as the year increases, attendance also increases

e) Write the equation of the line of best fit using linear regression on your calculator.

$y = 272.14x - 72.14$

f) Explain the meaning of the y intercept.

at the start of the 8-year period, -72.1 people attended (no meaning)

g) Explain the meaning of the slope

every year, 272.14 more people attend the festival

h) Predict the number of people that will attend the festival in year 10.

$y = 272.14(10) - 72.14$

$y = 2649.26$

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$\approx$ 2649 people

Example 2

The Table shows the total sales from women's clothing stores in the United States from 1997 to 2002. Make a scatter plot of the data. *Describe* the correlation of the data!

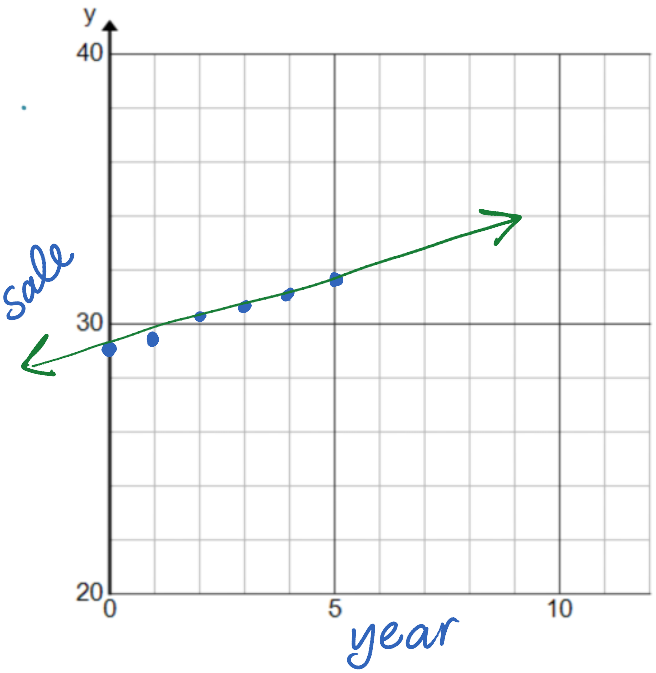
Year	1997	1998	1999	2000	2001	2002
Sale (in billions of dollars)	27.9	28.7	30.2	32.5	33.1	34.3

a) Identify the independent and dependent variables.

Independent: year

Dependent: sale

b) Label your axes and then make a scatter plot.



c) Is the correlation positive, negative, or none?

positive

d) Write a sentence to describe the correlation

as the year increases, sales go up

e) Find the equation of the line of best fit.

$y = 1.36x + 27.72$

f) Explain the meaning of the slope

every year, sales increase by $1.36 billion

g) Explain the meaning of the y-intercept.

in 1997, sales were $27.72 billion

h) In the year 2025, what would you expect the approximate sales of women's clothing to be?

h) In the year 2025, what would you expect the approximate sales of women's clothing to be?

$$\begin{array}{r} 2025 \\ -\ 1997 \\ \hline x = 28 \end{array}$$

$y = 1.36(28) + 27.72$

$y = \$\ 65.8$ billion