

Name _____

House Values



Rexana and Charline are researching houses in their city. Rexana thinks that the value of a house is related to its size. Charline thinks that the value of a house is related to its age. They have collected the data in the chart below.

HOUSE SIZE (SQUARE FEET)	HOUSE AGE (YEARS)	HOUSE VALUE
1150	42	\$110,000
2100	30	\$199,000
3200	3	\$350,000
1200	28	\$90,000
1600	11	\$185,000
1900	8	\$230,000
2500	7	\$310,000
3100	53	\$100,000
2200	3	\$250,000
1700	16	\$165,000
800	22	\$99,000
2900	6	\$270,000

Using a graphing calculator or computer graphing program, create a scatter plot showing the **size** and **value** data.

1. Which of the points would be considered an outlier?
2. Use technology to find the line of best fit. (Round values to the nearest whole number.)
3. Describe what the slope and y-intercept of the line mean in this context.
4. What is the correlation coefficient (to the thousandths)?

Using a graphing calculator or computer graphing program, create a scatter plot showing the **age** and **value** data.

1. Use technology to find the line of best fit. (Round values to the nearest whole number.)
2. Describe what the slope and y-intercept of the line mean in this context.
3. What is the correlation coefficient (to the thousandths)?
4. According to the correlation coefficients, which set of data is more closely correlated?
5. Recreate the **size** and **value** scatter plot but exclude the **outlier**. How does excluding the outlier affect the line of best fit and correlation coefficient?

House Values



Rexana and Charline are researching houses in their city. Rexana thinks that the value of a house is related to its size. Charline thinks that the value of a house is related to its age. They have collected the data in the chart below.

HOUSE SIZE (SQUARE FEET)	HOUSE AGE (YEARS)	HOUSE VALUE
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Using a graphing calculator or computer graphing program, create a scatter plot showing the **size** and **value** data.

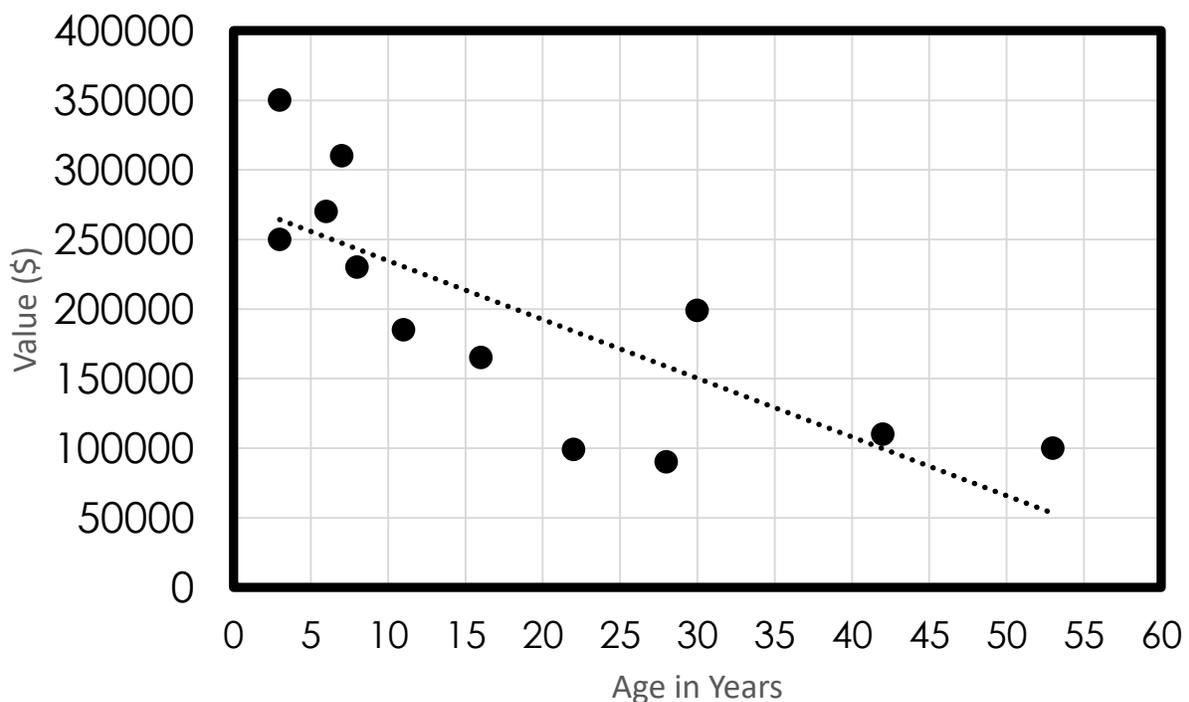
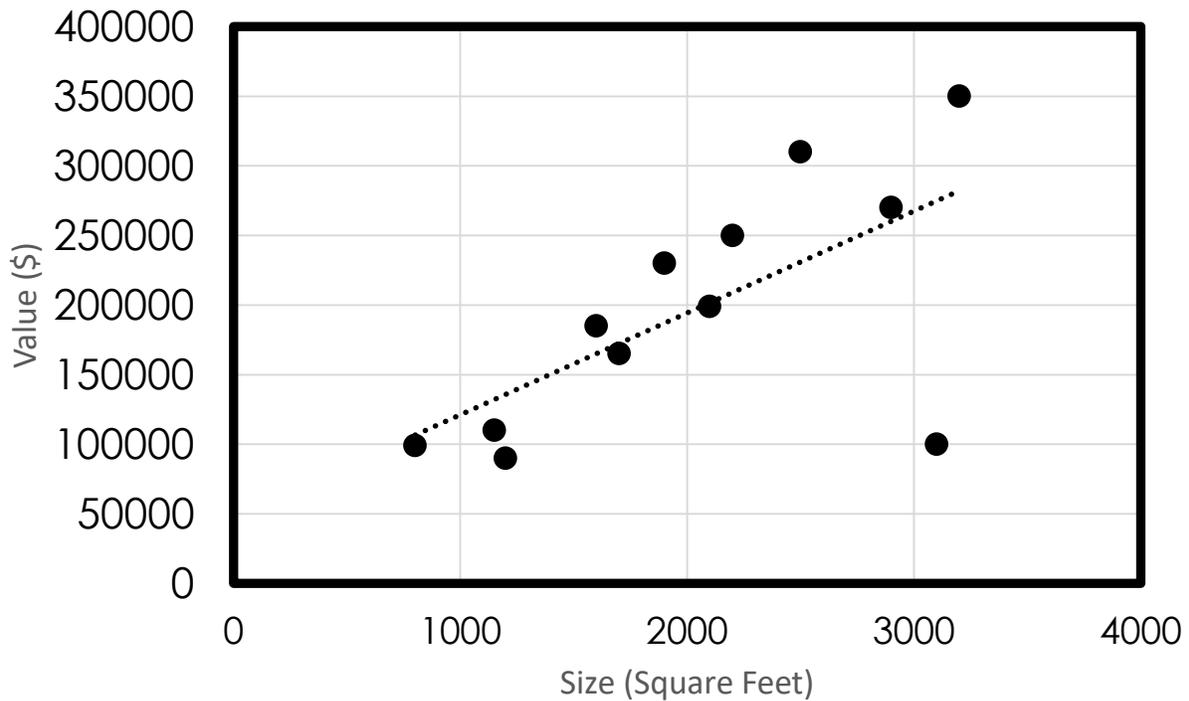
- Which of the points would be considered an outlier?
(3100, 100000)
- Use technology to find the line of best fit. (Round values to the nearest whole number.)
 $y = 73x + 48065$
- Describe what the slope and y-intercept of the line mean in this context.
A house increases in value \$73 per square foot. The starting value of a house (hypothetically with 0 square feet) is \$48065.
- What is the correlation coefficient (to the thousandths)?
0.656

Using a graphing calculator or computer graphing program, create a scatter plot showing the **age** and **value** data.

- Use technology to find the line of best fit. (Round values to the nearest whole number.)
 $y = -4222x + 277061$
- Describe what the slope and y-intercept of the line mean in this context.
A house decreases in value \$4222 per year. The value of a house that is 0 years old is expected to be \$277061.
- What is the correlation coefficient (to the thousandths)?
-0.784
- According to the correlation coefficients, which set of data is more closely correlated?
The age and value
- Recreate the **size** and **value** scatter plot but exclude the **outlier**. How does excluding the outlier affect the line of best fit and correlation coefficient?
The line of best fit is now $y = 110x - 6986$. (The slope is much steeper and y-intercept now negative.) The correlation coefficient is now 0.950, so the remaining data is much more closely related.

Scatter Plots for Reference

Below are the scatter plots students should create using technology. You may want to use these as reference or for class discussions.





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