**Home Prices**

The table shows the square footage, purchase price, and sale date of several homes that sold in Farmington, Connecticut.

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| --- | --- | --- |
| Date Sold | Sq. Ft. | Price  (in thous.) |
| 12/16/2010 | 3654 | 705 |
| 12/17/2010 | 4590 | 650 |
| 12/21/2010 | 2011 | 245 |
| 12/21/2010 | 1514 | 275 |
| 12/28/2010 | 1878 | 310 |
| 12/29/2010 | 1822 | 318 |
| 1/28/2011 | 2480 | 385 |
| 1/31/2011 | 2278 | 278 |
| 1/31/2011 | 1618 | 140 |
| 2/3/2011 | 961 | 95 |
| 2/9/2011 | 3298 | 1 |
| 2/14/2011 | 1917 | 183 |
| 2/14/2011 | 2676 | 575 |
| 2/15/2011 | 1361 | 212 |
| 2/18/2011 | 2617 | 385 |

1. Do you think that there is a linear relationship between square footage and purchase price? Explain.
2. Are there any outliers? What might explain these outliers?
3. Using technology, calculate a line of best fit.
4. What does the slope of the line of best fit represent in the context of the problem?
5. What is the value of the correlation coefficient? Explain the meaning of this value.
6. Imagine the house that is an outlier never sold. Perform linear regression without using the outlier. Give the regression equation, and state the value of the correlation coefficient.
7. Think about the two linear functions you created to model this data. Which model do you believe is a stronger predictor of the price of a home and its square footage? Explain.
8. Using the model you chose in question 7, predict the sale price of a house with 800 ft2. Is this interpolation or extrapolation? Explain.

9. Using the model you chose in question 7, predict the sale price of a house with 4000 ft2. Is this interpolation or extrapolation? Explain.

10. Using the model you chose in question 7, predict the square footage of a house that sold for $290,000. Is this interpolation or extrapolation? Explain.