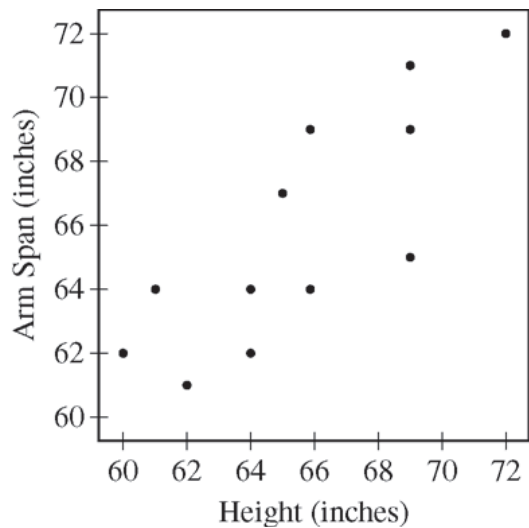
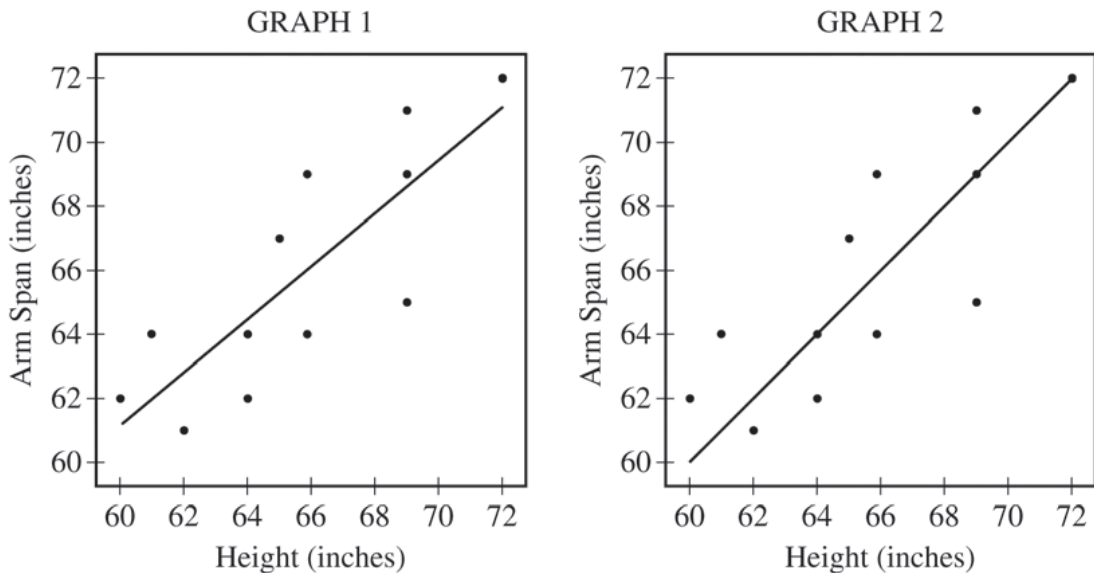


5. A student measured the heights and the arm spans, rounded to the nearest inch, of each person in a random sample of 12 seniors at a high school. A scatterplot of arm span versus height for the 12 seniors is shown.



- (a) Based on the scatterplot, describe the relationship between arm span and height for the sample of 12 seniors.

Let x represent height, in inches, and let y represent arm span, in inches. Two scatterplots of the same data are shown below. Graph 1 shows the data with the least squares regression line $\hat{y} = 11.74 + 0.8247x$, and graph 2 shows the data with the line $y = x$.



- (b) The criteria described in the table below can be used to classify people into one of three body shape categories: square, tall rectangle, or short rectangle.

Square	Tall Rectangle	Short Rectangle
Arm span is equal to height.	Arm span is less than height.	Arm span is greater than height.

- (i) For which graph, 1 or 2, is the line helpful in classifying a student’s body shape as square, tall rectangle, or short rectangle? Explain.

- (ii) Complete the table of classifications for the 12 seniors.

Classification	Square	Tall Rectangle	Short Rectangle
Frequency			

- (c) Using the best model for prediction, calculate the predicted arm span for a senior with height 61 inches.