1. Click on “Begin Assessment” button.
2. Scroll down to begin quiz.
1. Data on the selling prices of homes and the dwelling size were collected. The linear relationship between the selling price and the dwelling size is estimated with the following least-squares regression equation:

\[ \hat{y} = 60642 + 9.297x, \]

where \( x \) is the square footage and \( y \) is the selling price of the home. What is the predicted selling price of a home of size 1575 \( \text{ft}^2 \)?
2. For a house of size 1500 ft\(^2\), the 95% prediction interval for its selling price will be ______ the 95% confidence interval for the average selling price of all homes that are 1500 ft\(^2\).

   wider than
   the same as
   narrower
   not comparable with

3. True or False? If we give a prediction interval for one home whose size is 1500 ft\(^2\), this interval estimates the mean selling prices for all homes whose size is 1500 ft\(^2\).

   True
   False
4. True or False? If we compute a 95% prediction interval for the selling price of an 1100 ft\(^2\) home and a 95% confidence interval for the mean selling prices of all 1100 ft\(^2\), the centers of the intervals will be the same.

True
False
5. If you wanted to estimate the selling price of an 1850 ft\(^2\) home with a prediction interval, how would its margin of error compare to the margin of error for a prediction interval for the selling price of a 1550 ft\(^2\) home?
The 1850 ft² prediction interval would be wider than the interval for 1550 ft².
The 1850 ft² prediction interval would be narrower than the interval for 1550 ft².
The 1850 ft² prediction interval is not comparable with the interval for 1550 ft².
Self Assessment for Lesson 80

Click on the button below to see how you did.

Questions correct:

Percentage correct:

Click on the “Correct” button to highlight your correct answers in green and wrong answers in red. For question solutions either:

- shift-click on the “Ans” button that appears next to the free-response box or
- shift-click on the correct answer for the multiple choice questions.
Solution to Quiz: 1. To find the predicted selling price, \( \hat{y} \), we use the least-squares regression equation.

\[
\hat{y} = 60642 + 9.297x
\]

\[
\hat{y} = 60642 + 9.297(1575)
\]

\[
\hat{y} = 60642 + 14642.775
\]

\[
\hat{y} = 75284.775
\]
Solution to Quiz: 2. Prediction intervals are always wider than confidence intervals given the same $x^*$ value. Because prediction intervals give predicted values for one individual at $x^*$ and confidence intervals give values for the mean of all individuals at $x^*$, the prediction intervals will be wider than confidence intervals.
Solution to Quiz: 3. Confidence intervals give interval estimates for means whereas prediction intervals give interval estimates for individuals.

End Quiz
Solution to Quiz: 4. They are both centered at \( \hat{y} \).
Solution to Quiz: 5. As we try to predict our \( y \) values for \( x \) values far from the mean the \( x \)'s, namely \( \bar{x} \), our error gets larger. Although \( \bar{x} \) is not given, we can see from the graph that 1850 ft\(^2\) is much farther from the mean of the square footage than 1550 ft\(^2\). Therefore the error would be larger when doing the prediction for 1850 ft\(^2\).