✓ **Congratulations! You passed!**

| Grade received 93.75% | Latest Submission Grade 93.75% | To pass 80% or higher | **Go to next item** |

---

1. What is the difference between observed or actual values and the predicted values of a regression line?

[1 / 1 point]

○ Beta
● Residual
○ Slope
○ Parameter

✓ **Correct**

---

2. In linear regression, what mathematical technique is used to calculate the best fit line?

[1 / 1 point]

● Ordinary least squares
○ Sum of squared residuals
○ Coefficient of determination
○ Hold out coefficient

✓ **Correct**

---

3. A data professional testing for linear regression assumptions plots their dependent variable against their independent variable and notices that the graph appears as a repeating waveform. Which model assumption does this invalidate?

[1 / 1 point]

○ Independent observation
○ Homoscedasticity
● Linearity
○ Normality

✓ **Correct**

---

4. FILL in the blank: A scatterplot _____ is a series of scatterplots that show the relationships between pairs of variables.

[1 / 1 point]

● matrix
○ succession
○ progression
○ array

✓ **Correct**

---

5. A data professional at a toy manufacturer checks model assumptions while working on a project about potential new game concepts. They find no clear pattern in their scatterplot and can confirm constant variance along the values of the dependent variable. What does this scenario describe?

[1 / 1 point]

● Homoscedasticity
○ Linearity
○ Normality
○ Independent observation

✓ **Correct**

---

6. Fill in the blank: A _____ is the area surrounding a line that describes the uncertainty around the predicted outcome at every value of X.

[1 / 1 point]

● confidence band
○ interval slope
○ confidence slope
○ interval band

✓ **Correct**

---

7. What measures the proportion of variation in the dependent variable Y explained by the independent variable X?

[1 / 1 point]

● R squared
○ Mean squared error (MSE)
○ P-value
○ Mean absolute error (MAE)

✓ **Correct**

---

8. Which of the following statements accurately describe a randomized, controlled experiment? Select all that apply.

[0.5 / 1 point]

☑ The differences between the control and treatment groups must be observable and measurable.

✓ **Correct**

☐ To be successful, data professionals must control for every factor in the experiment.

☑ As the study is conducted, the only expected similarity between the control and experimental groups is the outcome variable being studied.

✗ **This should not be selected**
Review the reading about correlation versus causation. ↗

☑ It is a study design that randomly assigns participants into an experimental group or a control group.

✓ **Correct**