

Review Exercises

1. For each of the claims that follow, choose which of the following tests would be most appropriate.

- (a) One sample z/t test
- (b) Two sample z/t test
- (c) Paired difference test
- (d) One sample proportion test
- (e) Two sample proportion test
- (f) Analysis of variance
- (g) Chi-square goodness-of-fit test
- (h) Regression slope test
 - i. More than half of all babies born are boys.
 - ii. The probability a student will pass Engineering 5 is the same as the probability a student will pass Engineering 7.
 - iii. The average cost of a pack of cigarettes is higher in Canada than in the U. S.
 - iv. Smokers have a shorter life expectancy than non-smokers.
 - v. Increased spending on schools corresponds to better student performance.
 - vi. Gas prices in Santa Cruz are the same as in San Jose.
 - vii. The average GPA is the same for students in each of the ten colleges.
 - viii. A coin is fair.
 - ix. The average rent for a one-bedroom apartment in Santa Cruz is \$1000.

2. A tax survey of houses in Levitt, Texas collected various pieces of information about homes in the area. One factor of interest is the lot size, the amount of land on the property. Here is the output of a regression of home value on lot size:

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	166.8852	4.6925	35.564	<2e-16
Lotsize	0.7652	0.6136	1.247	0.215

Multiple R-Squared: 0.01578

- (a) Test if there is a relationship between home value and lot size.
- (b) Interpret the R-Squared. Is this a good fit or a poor one?

3. In a class I taught last year, regressing final exam scores on midterm scores gives the following output:

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	43.16489	3.74433	11.528	1.56e-08
Midterm	0.42349	0.05005	8.462	7.09e-07

Multiple R-Squared: 0.8364

- (a) Test if there is an association between midterm and final exam scores in this class.
- (b) If a student got 75 out of 100 on the midterm, what is their predicted final exam score?
- (c) If the t -test for regression has 14 degrees of freedom, how many students were in the class?