CHAPTER 26: INFERENCES FOR REGRESSION

Regression Conditions & Assumptions

- Linearity Assumption (Straight Enough?) -

- Independence/Randomization Assumption -

- Equal Variance Assumption (Does the Plot Thicken?) -

- Normal Population Assumption –

Residual Standard Deviation: $s_e = \sqrt{\frac{\sum(y-\hat{y})^2}{n-2}}$

Standard Error of the Slope: $SE(b_1) = \frac{s_e}{\sqrt{n-1}\ s_x}$

For each example, find the following:

- **Write the equation for the linear regression**
- **Determine t-value**
- **Determine the p-value**

Example #1

$H_0: \beta_1 = 0$; $H_A: \beta_1 \neq 0$

Dependent variable is: No Opinion
R-squared = 9.5%
s = 2.280 with 16 - 2 = 14 degrees of freedom

Variable	Coefficient	SE (Coeff)
Intercept	7.69262	2.445
Year	-0.042708	0.0353

Example #2

$H_0: \beta_1 = 0$; $H_A: \beta_1 < 0$

Dependent variable is: Men - Women
R-squared = 46.3%
s = 0.1866 with 24 - 2 = 22 degrees of freedom

Variable	Coefficient	SE (Coeff)
Intercept	49.9021	10.93
Year	-0.023957	0.0055