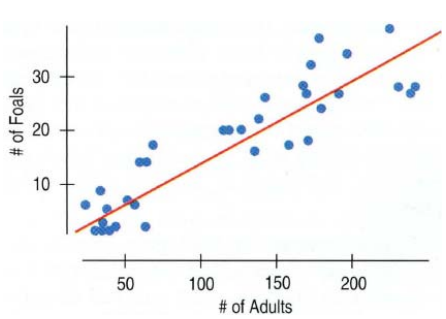
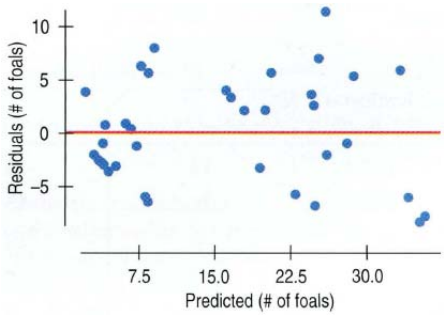
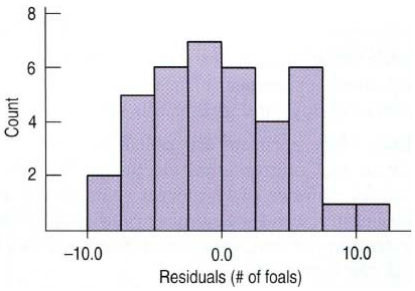
AP STATISTICS **Name:** _____ **Per:** ___

Regression Slope Inference Practice

1. Large herds of wild horses can become a problem on some federal lands in the West. Researchers hoping to improve the management of these herds collected data to see if they could predict the number of foals that would be born based on the size of the current herd. Data from a random sample of 38 herds is summarized below:





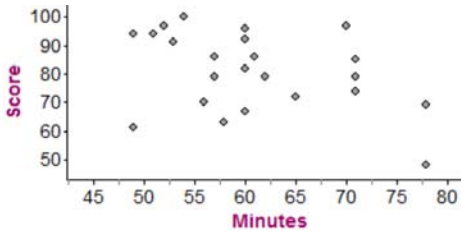


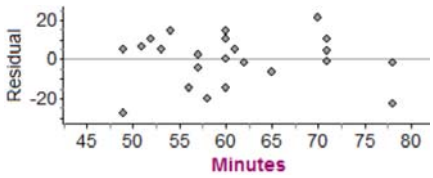
Variable	**Coefficient**	**S.E. of Coeff**	**T-ratio**	**Probability**
Adults	0.153969	0.0114	13.5	≤ 0.0001
Constant	-1.57835	1.492	-1.06	0.2970
S = 5.67	R-sq = 79%	R-sq adj = 80.5%		

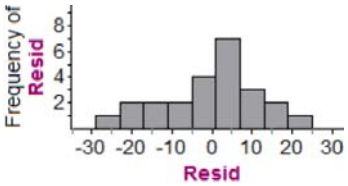
a) Do the data present statistical evidence of a linear association between the size of herd and number of foals for these herds of wild horses?

b) Create and interpret a 95% confidence interval for the slope of the regression line relating herd size and number of foals born.

2. Can amount of time taken by a student on a test be used to predict the exam score? The test scores on a probability exam for 24 students at Podunk High School were recorded by their Statistics instructor, along with the amount of time (in minutes) that it took for each student to finish the exam. The data from the regression analysis is shown below.







Predictor	**Coefficent**	**S.E. of Coef**	**T-statistic**	**P-value**
Intercept	119.64	19.28	6.204	0.0000
Minutes	-0.6314	0.3133	-2.016	0.0562
S = 12.641	R-sq = 15.59%		R-sq adj = 11.75%	

a) Do the data present statistical evidence of a linear association between the number of minutes taken to finish the exam and exam score?

b) Create and interpret a 95% confidence interval for the slope of the regression line relating the amount of time taken to finish the exam and score on the exam?