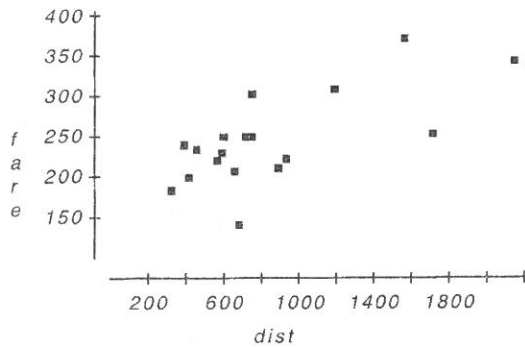


AP Statistics – Classwork – Distance and Ticket Price

Chapter 8



Atlanta to:	Distance	Fare
Baltimore	568	219
Boston	933	222
Dallas	720	249
Denver	1190	308
Detroit	602	249
Kansas City	683	141
Las Vegas	1719	252
Miami	589	229
Memphis	327	183
Minneapolis	894	209
New Orleans	419	199
NY	749	248
Okla City	749	301
Orlando	392	238
Philadelphia	657	205
St Louis	461	232
Salt Lake	1565	371
Seattle	2150	343
Summary Statistics		
Mean	853.7	244.33
St Dev	497.8	56.37
Correlation	0.694	

- Find r^2 . _____
- Explain what r^2 means in this context.

- Find the slope of the regression line.

- Find the y -intercept of the regression line.

- Write the equation of the linear model.

- Estimate the fare for a 200-mile flight.

- Estimate the fare for a 2000-mile flight.

- Using those estimates, draw the line on the scatterplot.
- Explain what the y -intercept means in this context.
- Explain what the slope means in this context.
- The fare to fly to Los Angeles, 1719 miles from Atlanta, is \$212. Find the residual.

- In general, a positive residual means...
- In general, a negative residual means...

Dependent variable is: fare

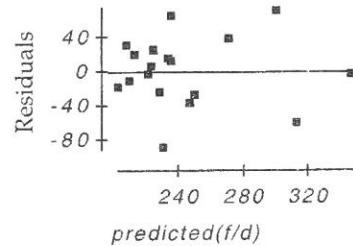
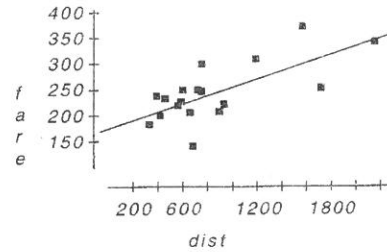
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R squared = 48.2% R squared (adjusted) = 45.0%

s = 41.82 with 18 - 2 = 16 degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	26037.4	1	26037.4	14.9
Residual	27980.6	16	1748.79	

Variable	Coefficient	s.e. of Coeff	t-ratio	prob
Constant	177.215	19.99	8.86	≤ 0.0001
dist	0.078619	0.0204	3.86	0.0014



1. Is the linear model appropriate for estimating airfare from distance flown? Why?

2. How strong is the model? Explain.

3. Identify outliers. Why are they unusual?

4. Write the equation of the model

5. Predict the airfare for a 1000-mile flight

Dependent variable is: dist

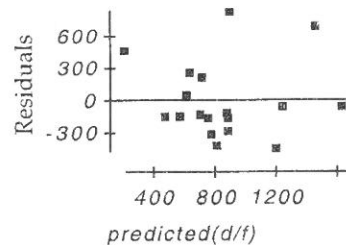
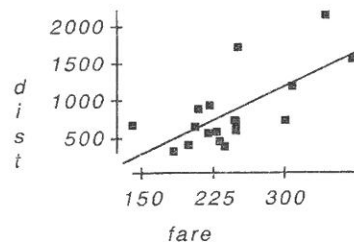
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R squared = 48.2% R squared (adjusted) = 45.0%

s = 369.3 with 18 - 2 = 16 degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	2030495	1	2030495	14.9
Residual	2182031	16	136377	

Variable	Coefficient	s.e. of Coeff	t-ratio	prob
Constant	-644.287	397.9	-1.62	0.1249
fare	6.13101	1.589	3.86	0.0014



6. Write the equation of the model to estimate how far you could fly for a given price.

7. How far does this model suggest you could fly for the fare you estimated in #5?