

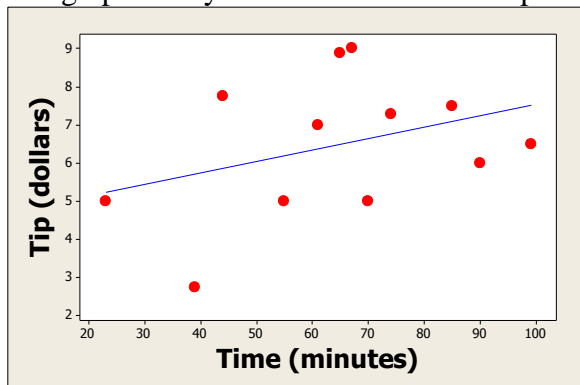
TIPS AT A BUFFET

Do customers who stay longer at buffets give larger tips? Charlotte, an AP statistics student who worked at an Asian buffet, decided to investigate this question for her second semester project. While she was doing her job as a hostess, she obtained a random sample of receipts, which included the length of time (in minutes) the party was in the restaurant and the amount of the tip (in dollars). Do these data provide convincing evidence that customers who stay longer give larger tips? Here is the data:

Time (minutes)	Tip (dollars)
23	5.00
39	2.75
44	7.75
55	5.00
61	7.00
65	8.88
67	9.01
70	5.00
74	7.29
85	7.50
90	6.00
99	6.50

Problem:

(a) Here is a scatterplot of the data with the least-squares regression line added. Describe what this graph tells you about the relationship between the two variables.

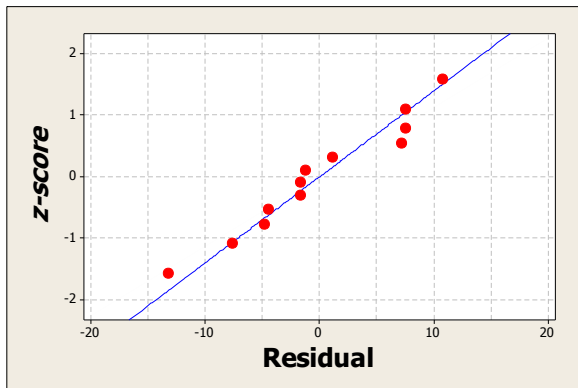
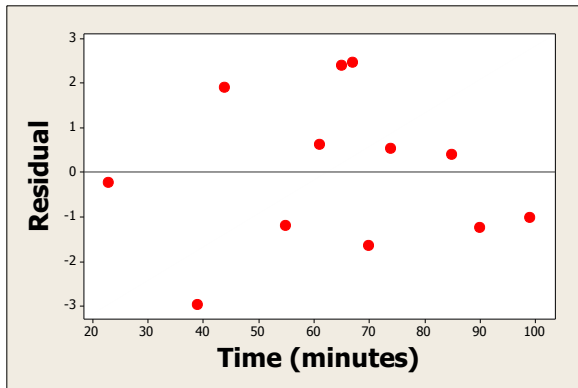


Minitab output from a linear regression analysis on these data is shown below.

Regression Analysis: Tip (dollars) versus Time (minutes)

```
Predictor      Coef    SE Coef      T      P
Constant      4.535   1.657     2.74   0.021
Time (minutes) 0.03013 0.02448    1.23   0.247
```

S = 1.77931 R-Sq = 13.2% R-Sq(adj) = 4.5%



- (b) What is the equation of the least-squares regression line for predicting the amount of the tip from the length of the stay? Define any variables you use.
- (c) Interpret the slope and y intercept of the least-squares regression line in context.
- (d) Carry out an appropriate test to answer Charlotte's question.