

2. Explanatory: type of treatment (categorical)

Response: survival time (quantitative)

4a) Negative. Months with high temperatures tend to have low gas consumption; vice versa, b/c as temp gets warmer, less gas would be needed for heating

b) Roughly linear, b/c a line through the scatterplot of points would provide a good summary. Strong b/c the points would be close to the line.

c) A month when an avg temp $\approx 58^\circ$; gas usage $\approx 260 \text{ ft}^3$

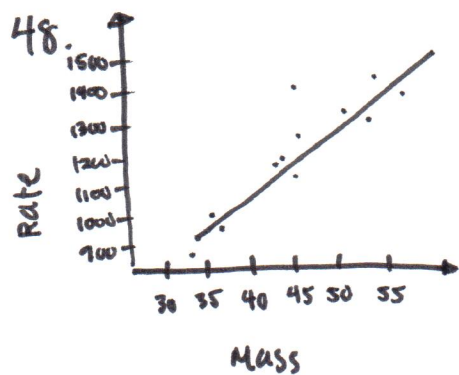
10. a) A scatterplot is shown

b) There is a positive, linear strong association between lean body mass; metabolic rate. This association is consistent with the researcher's belief that lean body mass is an important influence on metabolic rate.

38. a) 0.882. For each 1 point increase in IQ, the predicted reading score will increase by 0.882

b) -33.4. This represents the predicted reading score for a child with an IQ of 0, which is impossible.

c) 45.98



$$b) \hat{y} = 201.2 + 24.026x$$

c) For each additional kg of body mass the predicted metabolic rate increases by about 24 cal/day

d) residual = $1502 - 1416.9 = 85.1$. This woman's actual metabolic rate was 85.1 cal/day higher than predicted based on her lean body mass

50. a) B/c there is no obvious leftover pattern in the residual plot, a line is an appropriate model to use for these data

b) The point with the largest residual (mass = 42) has a residual of about 200. This means that the person with a lean body mass of 42 kg has a metabolic rate that is about 200 cal/day higher than the predicted based on the person's lean body mass

58. $r^2 =$ About 76.8% of the variation in the metabolic rate is accounted for by the linear model relating metabolic rate to lean body mass.

5: When using the LSRL with $x =$ lean body mass to predict $y =$ metabolic rate, we will typically be off by 95.08 cal/day

DAY 3

60. a) $\hat{y} = -0.126 + 0.0608x$ where $y = \text{brain activity}$

$x = \text{social distress}$. when $x=2$, $\hat{y} = -0.0044$

b) $R^2 = 77.1\%$

c) $r = +\sqrt{R^2} = .88$ The sign is positive b/c slope is positive

d) when using LSRL with $x = \text{social distress score}$ to predict $y = \text{brain activity}$. we will typically be off by .0251

62. a) $\hat{y} = 6.083 + 1.707x$

b) if the value of x is 2 standard deviations above \bar{x} , the predicted value of y will be 2 standard deviations above \bar{y} . so the predicted value for the % change for the entire year is $9.07 + 2(0.596)(15.35) = 27.4\%$

DAY 4

68. $\hat{y} = 110.44 + 15.1682x$, where $y = \text{calories}$ and $x = \text{fat}$

$s = 12.25$ meaning that predictions will be off by 12.25 cal

$r^2 = .996$ meaning that 99.6% of the variation in the # of calories is accounted for by the linear model relating # of cal to g of fat

The linear model is appropriate and fits the data very well, accounting for nearly all of the variation in # of calories