e) Since the researchers would not be able to control many of the variables it would be difficult to determine why the weight loss occured.

problem 37

a) Experiment phase

b) It is a controlled experiment

c) The number of MS attacks

d) consumption of bovine myelin.

e) Group recieving the bovine myelin.

problem 43

Income could be a major confounding variable. People with higher income are going to more likely have the money to invest to begin with.

section 2.3

problem 19

a) interval and ratio

b) Nominal

c) Ordinal

d) interval and ratio

Section 3.1

problem 5

a) nominal

b) qualitative

c)

Air conditioner	16
lawn mower	10
Fan	7
washing machine	6
Misc	9

Section 4.1

problem 6

a) mean

b) mode

c) median or mode

Problem 22

$1 - 1/k^2$ for $k > 1$

$.75 = 1 - 1/k^2$

$-.25 = -1/k^2$

$.25 = 1/k^2$

$\pm .25 = k^2$

$\sqrt{1/.25} = k = 2$

$972 \pm 2(127) = \boxed{972 \pm 254}$

Problem 24

a) $\$4500 \pm \$750$ $(3750, 5250)$

b) $4500 \pm 2(750) = 4500 \pm 1500$ $(3000, 6000)$

c) $4500 \pm 3(750) = 4500 \pm 2250$ $(2250, 6750)$

d) We are assuming normal distribution

$$z = \frac{x - \bar{x}}{s} \qquad \bar{x} = 64 \qquad s = 21$$

Problem 14

a. $x = 80 \rightarrow \frac{80 - 64}{21} = .762 \rightarrow$ 80 is above the mean

b) $x = 64 \rightarrow \frac{64 - 64}{21} = 0 \rightarrow$ 64 is the mean

c) $\frac{40 - 64}{21} = -1.143 \rightarrow$ 40 is below the mean.

Section 5.1

Prob 20

a) $\{A, B, C, D\}$

b) $L = \{A\}$ $M = \{B, C, D\}$

Prob 26 $P(x = k) = k/n$ $x = 45$

$P(x = 45)$ $n = 50$ $\frac{45}{50} = p$

Prob 30

a) FF MM FM MF

b) $1/4 = .25$

c) $2/4 = 1/2 = .5$

section 5.2

prob 7

a). Yes

b) No, a probability cannot be greater than 1.

c) Yes

d) No, a probability cannot be less than zero

e) Yes.

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prob 13

a) $\frac{200+50+10+10}{1000} = \frac{270}{1000} = .27 = P$

b) $\frac{20+10+25+25}{1000} = \frac{80}{1000} = .08 = P$

c) $20+10+15+15+25+30+50 = \frac{165}{1000} = P = .165$

d) $\frac{400}{1000} = .4$

e) $\frac{400+200+50+50}{100} \rightarrow \frac{700}{1000} = .7$

$1 - .7 = .3$

f. $400+50+20+20$ $\frac{490}{1000} = .49$ $1-.49=.51$

g. Relative Frequency approach

h. No, the probability is $\frac{10}{1000} = .1$ for that scenario so therefore not mutually exclusive

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Section 5.5

prob 3

a) $196 + 92$ $\frac{92}{288} = .318$

b) $92 + 173 = 265$

$\frac{92}{265} = .347$

c) $298 + 173 = 471$

$\frac{298}{471} = .633$

d) $196 + 298 = 494$

$\frac{298}{494} = .603$

$P(E) = .7$

prob 5

a. $\frac{.6}{.7} = .857 = P(A|E)$

b) $1 - .857 = .143$

Section 5.6

prob 9 $P(A)\,P(B) = (.01)\cdot(.01) = .0001$

prob 13 a) $A = .98$

.02 False positive

$.02 \cdot .02 = .0004$

b) $1 - .98 = .02$

$.02 \cdot .02 = .0004$