HOMEWORK #3 – SOLUTIONS

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2)  b)  from prob. 2a, min = 1, max = 9. The 5-number summary is (1, 3, 5, 8, 9).

10) False. $x = \bar{x}$ or $\mu$

14)  a)  min = 25  b)  max = 85  c)  $Q_1 = 50$
    d)  $Q_2 = 65$  e)  $Q_3 = 70$
    f)  $IQR = 70 - 50 = 20$

26) The 5-number summary is (13.8, 15.125, 15.8, 17.65, 19.45).

28)  a)  $17.65$
    b)  50%
    c)  50%

36)  a)

$$z = \frac{34 - 33}{4} = 0.25$$

$$z = \frac{30 - 33}{4} = -0.75$$

$$z = \frac{42 - 33}{4} = 2.25$$

The last value is somewhat unusual.

b)

$$z = \frac{29 - 33}{4} = -1 \Rightarrow 16th \ percentile$$

$$z = \frac{41 - 33}{4} = 2 \Rightarrow 97.5th \ percentile$$

$$z = \frac{25 - 33}{4} = -2 \Rightarrow 2.5th \ percentile$$
48)  a) Disc 1: symmetric and less variation
       Disc 2: skewed right
   b) Disc 2 has the more variation
   c) Disc 1 – approximately 68% of the data should be between ±16.3 of the mean.

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8)  \[ S = \begin{cases} (1,1),(1,2),(1,3),(1,4),(1,5),(1,6), \\
                   (2,1),(2,2),(2,3),(2,4),(2,5),(2,6), \\
                   (3,1),(3,2),(3,3),(3,4),(3,5),(3,6), \\
                   (4,1),(4,2),(4,3),(4,4),(4,5),(4,6), \\
                   (5,1),(5,2),(5,3),(5,4),(5,5),(5,6), \\
                   (6,1),(6,2),(6,3),(6,4),(6,5),(6,6) \end{cases} \]

   \[ n(S) = 36 \]

14) \[ n = 3 \cdot 6 \cdot 4 = 72 \text{ different meals}. \]

24) \[ P = 1 - .05 = .95 \text{ not defective} \]

30) \[ \frac{6290}{6296} = .999 = P \]

44) \[ P = \frac{61,159,368}{53,254,474 + 61,159,368} = .5345 \]

60)  a) \[ P(x < \$21) = .25 \]
     b) \[ P(21 < x < 50) = .50 \]
     c) \[ P(x \geq 30) = .50 \]