

PERCENTILE RANK

$$P = \frac{[100(i - 0.5)]}{N}$$

i = Rank (Lowest to Highest)

N = number of observations

$$P = \left(\frac{B + 0.5E}{N} \right) 100$$

B = Scores Below the value

E = Scores Equal to the value

N = number of scores

METHOD 1

2, 3, 3, 5, 7, 9, 11

METHOD 2

$$P = \left(\frac{3 + (0.5)(1)}{7} \right) (100)$$

$$\left(\frac{3.5}{7} \right) 100$$

$$\frac{350}{7} = 50$$

PERCENTILE RANK of 5

$i = 4$ ← 4th number from LEFT to RIGHT

$n = 7$ ← 7 total observations

$$P = \frac{[100(4 - 0.5)]}{7} = \frac{(100)(3.5)}{7} = \frac{350}{7} = 50 \text{th PERCENTILE}$$

$$\frac{(N)(P)}{100}$$

2, 3, 3, 5, 7, 9, 11, 13 $n = 8$

Find the 30th PERCENTILE VALUE:

$$\frac{P(30)}{100} \rightarrow (8)(.30) = 2.4 \text{ Round up} \rightarrow 3 \text{ (Third value from lowest to highest)}$$

3

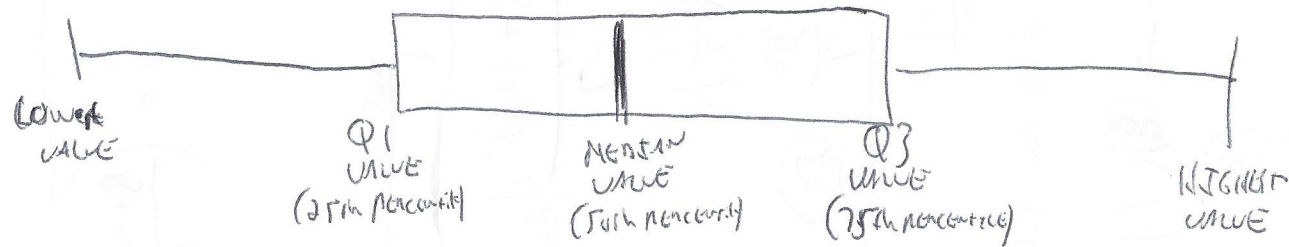
If calculation is a whole number, then MEAN that observation with the next one ($n+1$)

Find the 50th PERCENTILE VALUE:

$$\frac{P(50)}{100} \rightarrow (8)(.5) = 4 \text{ whole number MEAN of 4th & 5th value}$$

$$\frac{5+7}{2} = 6$$

Box & Whisker Plot



Range: Highest Value - Lowest Value

IQR (Interquartile Range): Q3 Value - Q1 Value