1

Equal depth (frequency) , N=3

$$[5, 10, 11, 13] \qquad [15, 35, 50, 55] \qquad [72, 92, 204, 215]$$

Equal width , N=3

$$width = \frac{Max - Min}{N} = \frac{215 - 5}{3} = 70$$
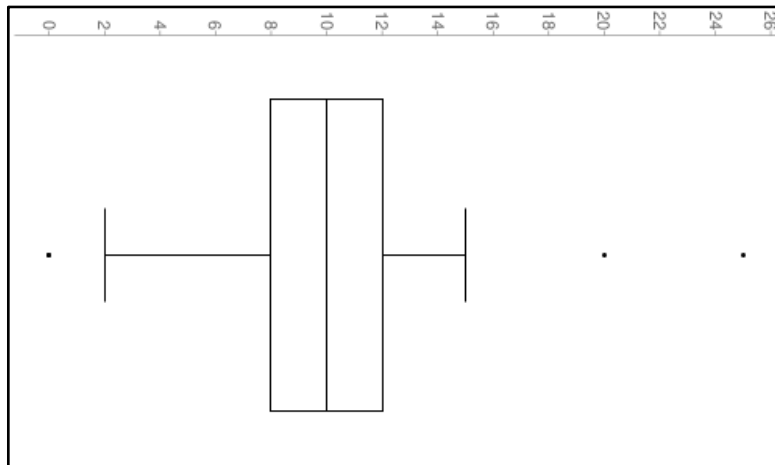
$5 - 75: [5,10,11,13,15,35,50,55,72] \qquad 75 - 145: [92] \qquad 145 - 215: [204,215]$

2

$Q_1 = 8 \quad Q_2 = 10 \quad Q_3 = 12 \quad IQR = Q_3 - Q_1 = 4 \quad 1.5 * IQR = 1.5 * 4 = 6$

$Q_1 - 6 = 2 \qquad outliers\ with\ value\ smaller\ than\ 2 = [0,0]$

$Q_3 + 6 = 18 \qquad outliers\ with\ value\ greater\ than\ 18 = [20,25]$

3

$$[13, 15, 16, 16, 19, 20, 20, 21, 22]$$
$$[22, 23, 23, 23, 25, 25, 25, 35, 35]$$
$$[35, 35, 36, 40, 45, 46, 52, 70]$$

Smoothing by bin means

$$[18, 18, 18, 18, 18, 18, 18, 18, 18]$$
$$[26.2, 26.2, 26.2, 26.2, 26.2, 26.2, 26.2, 26.2, 26.2]$$
$$[44.8, 44.8, 44.8, 44.8, 44.8, 44.8, 44.8, 44.8]$$

Smoothing by bin boundaries:

$$[13, 13, 13, 13, 22, 22, 22, 22, 22]$$

$$[22, 22, 22, 22, 22, 22, 22, 35, 35]$$

$$[35, 35, 35, 35, 35, 35, 35, 70]$$