ECO239 Quiz 1 (Nov.14,2018) ID_____; NAME Solution

Question 1 : For the data {43, 54, 23, 75, 86, 92, 49, 88, 50, 66, 98, 33} (n = 12), find necessary values for constructing a box-plot (including upper- and lower-whiskers) and draw the boxplot.

Sort ascending {23, 33, 43, 49, 50, 54, 66, 75, 86, 88, 92, 98}

6 each

$PQ1 = \left(\frac{12+1}{4}\right) = 3.25 \rightarrow Q1 = 43 + (49-43)(0.25) = 44.5$

$PQ2 = \left(\frac{12+1}{2}\right) = 6.5 \rightarrow Q2 = 54 + (66-54)0.5 = 60$

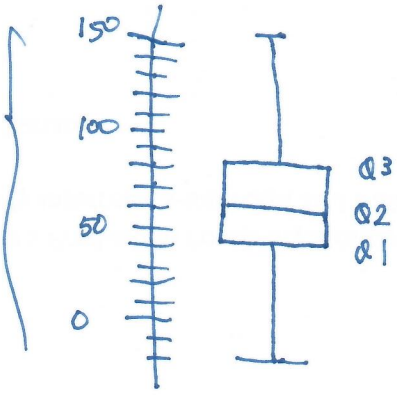
$PQ3 = \frac{3}{4}\left(\frac{12+1}{\text{min}}\right) = 9.75 \rightarrow Q3 = 86 + (88-86)(0.75) = 87.5$

IQR = 43

upper whisker = $Q3 + 1.5(IQR) = 87.5 + 1.5(43) = 152$

lower whisker = $Q1 - 1.5(IQR) = 44.5 - 1.5(43) = -20$

12



(4pt) Question 2: For the data {25, 48, 56, 83}, calculate standard deviation.

$\bar{X} = 53$

X	$X-\bar{X}$	$(X-\bar{X})^2$
25	$25-53 = -28$	784
48	$48-53 = -5$	25
56	$56-53 = 3$	9
83	$83-53 = 30$	900
		1718

15

$\bar{X} = 53$ (5)

$S^2 = \frac{1718}{3} = 572.67$ (5)

$S = \sqrt{572.67} = 23.93$ (10)