tut2

Quiz #1, version B

Q4.

"Label the data"

1	2	3	4	5	6	7	8	9	10	11	12
34	38	56	58	60	61	63	66	66	66	66	70

13	14	15	16	17	18	19	20	21	22	23	24
72	72	81	82	85	86	90	90	90	90	94	95

$n = 24$.

a) Outlier $\longrightarrow$ use $\quad q(0.25) - 1.5 \, IQR$
$\qquad\qquad\qquad\qquad q(0.75) - 1.5 \, IQR \qquad$ where $IQR = q(0.75) - q(0.25)$

$q(0.25):\quad (n+1)\, 0.25 = (25)(0.25)$
$\qquad\qquad\qquad\qquad\qquad = 6.25$

$\qquad \longrightarrow \frac{1}{2}\left(y_{(7)} + y_{(6)} \right) = \frac{1}{2}\left(61 + 63 \right) = 62$

similarly
$q(0.75):\quad m = 18.75$
$\qquad\qquad \frac{1}{2}\left(y_{(18)} + y_{(19)} \right) = 88$

$\quad \hookrightarrow \quad IQR = 88 - 62 = 26 \;,\quad 1.5 \, IQR = 39$

$q(0.25) - 1.5 \, IQR = 62 - 39 = 23 \quad < y_{(1)}$
$q(0.75) + 1.5 \, IQR = 88 + 39 = 127 \cdot \; > y_{(24)}$

no outlier.

b) 2 modes / more than 1 mode
as both 66 & 90 shows up 4 times.

c) straight forward, use definition.