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3. The stem and leaf diagram shows the number of deliveries made by Pat each day for 24 days

Key: 10 | 8 represents 108 deliveries

10	8	9										(2)
11	0	3	6	6	6	8	8	9	9	9	9	(11)
12	4	5	5	5	5	5	5	8				(8)
13	a	b	c									(3)

where a, b and c are positive integers with $a < b < c$

An outlier is defined as any value greater than $1.5 \times$ interquartile range above the upper quartile.

Given that there is only one outlier for these data,

(a) show that $c = 9$

(3)

The number of deliveries made by Pat each day is represented by d

The data in the stem and leaf diagram are coded using

$$x = d - 125$$

and the following summary statistics are obtained

$$\sum x = -96 \quad \text{and} \quad \sum (x - \bar{x})^2 = 1306$$

(b) Find the mean number of deliveries.

(3)

(c) Find the standard deviation of the number of deliveries.

(2)

One of these 24 days is selected at random. The random variable D represents the number of deliveries made by Pat on this day.

The random variable $X = D - 125$

(d) Find $P(D > 118 | X < 0)$

(2)

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Question 3 continued

(Total 10 marks)

Q3