Solutions Question 5

5

(a) (i) mean

$$\frac{1(1) + 3(2) + 7(3) + \ldots\ldots}{50} = \frac{230}{50} \qquad M1$$

$$= 4.6 \qquad A1 \text{ or } G2$$

(ii) std. deviation

STAT CALC
1-variable stat
L1
L2

$$S = 1.45602\ldots$$

$$= 1.46 \qquad G1$$

(b) Median Test grade is 5 A1

(c) $IQR = 6 - 4$ M1

$= 2$ A1 or G2

(d) Probability the student is in grade 5 or higher

$$\frac{11+10+5}{50} = \qquad M1$$

$$= \frac{26}{50} \left(\frac{13}{25} \text{ or } .52 \text{ or } 52\%\right) \qquad A1 \text{ or } G2$$

problem 5 continued

e) You know the first student scored a 5 or higher (but not necessarily the second)

P[first scored a 6 and 2nd student scored a 6]

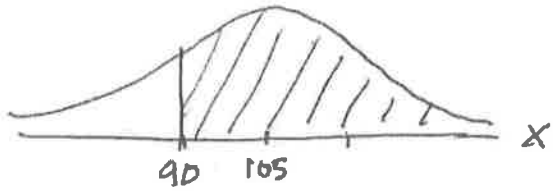
↑ know that first is 5 or higher

↑ but don't know whether it is a 5 or higher

$= \left(\frac{10}{26}\right) \cdot \left(\frac{9}{49}\right)$

$= \frac{45}{637}$ $\left(.0706 \text{ or } 7.06\%\right)$

(f) (i)



M1 for diagram

$P(X \geq 90) = 0.773372...$

$= 0.773$ A1 or G2

(ii) Expected number that spent at least 90 minutes

$(0.773372...)(50)$ A1

$= 38.6686.....$ A1 or G2

$= 38.7$ students

total 15 marks