

Question	Scheme	Marks	AOs
1(a)	$[Q_2 =] (5+) \frac{12}{15} \times 5$ or (use of $(n+1)$) $(5+) \frac{12.5}{15} \times 5$	M1	1.1a
	$= 9$ or 9.166... awrt 9.17	A1	1.1b
		(2)	
(b)	$[\sigma_x =] \sqrt{\frac{5675}{30} - \left(\frac{355}{30}\right)^2} = \sqrt{49.14...}$	M1	1.1a
	$= \text{awrt } 7.01$	A1	1.1b
	Accept $\left(s_x = \sqrt{\frac{5675 - 30\left(\frac{355}{30}\right)^2}{29}} = 7.1294... \right)$		
		(2)	
(c)	$x = \frac{t-15}{2}$ or $t = 2x + 15$	M1	3.1b
	Median = $2 \times 9 + 15 = 33$ (allow awrt 33.3 from “9.17” in (a))	A1ft	1.1b
	Sd = $2 \times 7.01 = 14.02...$ (awrt 14.0) [allow awrt 14.3 if s used]	A1ft	1.1b
		(3)	
(d)	The median time is “33” and “33” < 35 so 50% (30) should finish in 35 minutes.		
	ALT Probability of being < 35 mins is $\frac{18}{30} \setminus \frac{18}{30}, 60 = 36$ applicants to choose from.	M1	2.4
	It is likely that they will fill all 25 positions [providing those offered accept]	A1	2.2b
		(2)	

Notes: (9 marks)			
(a) M1: For a suitable fraction $\times 5$ (ignore end points) A1: For 9 or awrt 9.17 if using $n + 1$			
(b) M1: For a correct expression for \bar{x} and s_x or s_x A1: For awrt $s_x = 7.01$ or $s_x =$ awrt 7.13			
(c) M1: For realising $x = \frac{t-15}{2}$ and then rearranging to get a correct equation with t as the subject May be implied by a correct answer for the median of t . A1ft: ft their median A1ft: ft their s_x or s_x . NB using s gives awrt 14.3			
(d) M1: For a suitable comparison following through their value for the median of t . A1: A correct conclusion in context following through their value for the median of t .			