Question			Answer	Marks	AO	Guidance
9	(a)		mean 112.4 **isw or** 112 **isw**	**B1**	**1.1**	
			variance 8.8 or $\sqrt{8.8^2}$ **cao isw**	**B1**	**1.1**	**B0** for 8.757 explicitly rounded to 8.8
				[2]		
9	**(b)**		N(their 112.4, their 8.8)	**M1**	**3.3**	allow **M1** for 8.8^2 or $\sqrt{8.8}$
			N(a, b)	**A1**	**1.1**	a = 112.4 or 112 and b = 8.8 or 2.97^2
				[2]		
9	**(c)**		P(mark < 104.5) or P(mark < 105) found from their distribution in part **(b)**	**M1**	**3.4**	may see N($-\infty$, 104.5,112.4, $\sqrt{8.8}$) **NB** 0.00387 or 0.0063(06) implies **M1** **NB** 0.00573 or 0.00914 implies **M1** **NB** 0.00379(69..) or 0.00619(81…) may imply **M1 FT** use of variance = 8.757 **NB** 0.200(199…) and 0.184(665…) may imply **M1 FT** use of sd = 8.8 if probability is correctly found to be 0 eg from use of N(112.4, $\frac{8.8}{205}$) allow **M1** only – no further marks available
			205 × *their* non-zero 0.00387	**M1**	**3.1a**	**or** compare $\frac{1}{205}$ (≈ 0.00488) with *their* non-zero 0.00387
			0.79 to 0.794 **or** 1.17 to 1.175 so consistent **oe**	**A1**	**3.5a**	**or** probabilities similar so consistent **oe**
				[3]		

Question			Answer	Marks	AO	Guidance
			Alternatively InvNorm$\left(\frac{1}{205}, 112.4, \sqrt{8.8}\right)$ or InvNorm$\left(\frac{1}{205}, 112, \sqrt{8.8}\right)$ used to find their mark compares their mark with 105 104.7 or 104.3 is close to 105 so good fit	**M1** **M1** **A1**		**FT** their distribution
9	**(d)**		P(mark between 114.5 and 115.5) found 18.75 to 18.77 so allow 18 or 19 **or** 16.5 to 16.534 so allow 16 or 17	**M1** **A1**	**3.4** **3.5a**	**NB** awrt 0.0915 or awrt 0.0807 implies **M1** unsupported answers score **M0**
				[2]		