

9	(a)	(i)	0.761 or 0.762 (3 sf)		B1 [1]	1.1	BC Allow 0.76	
9	(a)	(ii)	62.0 (3 sf)		B1 [1]	1.1	BC Allow 62 or 61.9	Allow $m \geq 62.0$
9	(a)	(iii)	Use of $\bar{X}$ eg " $\bar{X}$ " or "mean" or $\frac{18}{10}$ or $\sqrt{\frac{18}{10}}$ $\bar{X} \sim N(55, \frac{18}{10})$ $P(\bar{X} < \frac{530}{10})$ dep $\sigma^2 = \frac{18}{10}$ $= 0.0680$ (3 sf)		M1 M1 M1 A1 [4]	1.1a 3.3 3.4 1.1	$\mu = 550$ seen or implied $\Sigma X \sim N(550, 180)$ Correct $P(\Sigma X < 530)$ dep $\sigma^2 = 180$ $= 0.0680$ (3 sf) Allow 0.068	May be implied Stated or implied Correct answer from limited (or no) working: M1M1M1A1
9	(b)		$P(Y < 72) = 0.75$ $\Phi^{-1}(0.75)$ or 0.674 $\frac{72-67}{\sigma}$ $\frac{72-67}{\sigma} = 0.674$ $\sigma = 7.41$ or 7.42 (3 sf) Trial and Improvement $\Phi^{-1}(0.75)$ or 0.674 or $\Phi^{-1}(0.25)$ or -0.674 eg $\sigma = 8$: $67 - 8 \times 0.674 = 61.6$ $\sigma = 7$: $67 - 7 \times 0.674 = 62.3$ $\sigma = 7.41$: $67 - 7.41 \times 0.674 = 62.0 \Rightarrow \sigma = 7.41$ or $\sigma = 7.42$: $67 - 7.42 \times 0.674 = 62.0 \Rightarrow \sigma = 7.42$	$P(Y < 62) = 0.25$ $\Phi^{-1}(0.25)$ or -0.674 $\frac{62-67}{\sigma}$ $\frac{62-67}{\sigma} = -0.674$	M1 M1 M1 A1 A1 M2 M1 A1 A1	3.1b 2.4 2.1 1.1 1.1	oe May be implied, eg on diagram ± 0.674 implies M1M1 Allow 0.67 oe, eg $5 = 0.674 \sigma$ A1 for correct eqn, allow 0.67 SC correct answer with no working or irrelevant working: SC B3 (because "determine" rather than "find") May be implied At least one correct trial Trials leading to values either side of 62 Correct trial using $\sigma = 7.41$ or 7.42 and conclusion $\sigma = 7.41$ or 7.42	NB $P(62 < Y < 72) = 0.5$ no mks yet M1M1M1 may be implied by A1 Must be seen or SC B2 if correct to 2 sf

