

Question	Answer	Marks	Guidance
(a)	$[P(1.98 < X < 2.03) =]P(\frac{1.98 - 2.02}{0.03} < z < \frac{2.03 - 2.02}{0.03})$ $[= P(-1.333 < z < 0.333)]$	M1	Use of \pm standardisation formula once with 2.02, 0.03 and either 1.98 or 2.03 substituted appropriately. Condone 0.03^2 and continuity correction ± 0.005 , not $\sqrt{0.03}$.
	$[= \Phi(0.333) - (1 - \Phi(1.333))]$ $= 0.6304 + 0.9087 - 1$	M1	Calculating the appropriate probability area from <i>their</i> z-values. (or $0.6304 - 0.09121$ or $(0.9087 - 0.5) + (0.6304 - 0.5)$ etc)
	0.539	A1	$0.539 \leq z < 0.5395$ Only dependent upon 2nd M mark. If M0 scored SC B1 for $0.539 \leq z < 0.5395$.
		3	
(b)	$[P(X > 2.6) = \frac{134}{5000} = 0.0268]$ $[P(X < 2.6) = 1 - 0.0268 =] 0.9732$	B1	0.9732 or $\frac{4866}{5000}$ or $\frac{2433}{2500}$ seen.
	$\frac{2.6 - 2.55}{\sigma} = 1.93$	M1	Use of \pm standardisation formula with 2.6 and 2.55 substituted, no $\sigma^2, \sqrt{\sigma}$ or continuity correction.
		M1	<i>Their</i> standardisation formula with values substituted equated to z-value which rounds to ± 1.93 .
	$\sigma = 0.0259$	A1	AWRT 0.0259 or $\frac{5}{193}$. If M0 earned, SC B1 for correct final answer.
		4	