Question Number	Scheme	Marks
7(a)	$[\mathrm{P}(48.45 < W < 54.4) =]\mathrm{P}\left(Z < \frac{54.4-51}{1.7}\right) - \mathrm{P}\left(Z < \frac{48.45-51}{1.7}\right)$	M1M1
	$[0.9772 - 0.0668] = 0.9104$ Cal: 0.91044... awrt 0.910	A1
		(3)
(b)	$[\mathrm{P}(53.55 < W < 54.4) =]"0.9772" - (1 - "0.0668")$ [= 0.044] Calc:0.044057....	M1
	$[\mathrm{P}(W > 53.55 \mid 48.45 < W < 54.4) =]\frac{"0.044"}{"0.9104"}$	M1
	= 0.04833 awrt 0.0483/0.0484	A1
		(3)
(c)	$\frac{64.58-\mu}{\sigma} = -0.5244$ (Calc: – 0.524400...)	M1
	$\frac{69.46-\mu}{\sigma} = 1.2816$ (Calc: 1.281551)	M1
	$4.88 = 1.806\sigma \Rightarrow \sigma = 2.702...$ awrt 2.7 $\mu = 65.996...$ awrt 66	dM1A1
		(4)
	Notes	**Total 10**

(a)	**M1**	Standardising with 54.4, 51 and 1.7 (implied by ±2) or standardising with 48.45, 51 and 1.7 (implied by ±1.5) using 1.7^2 is M0
	M1	Standardising with 54.4, 51 and 1.7 **and** 48.45, 51 and 1.7 **and** attempt to find correct probability using $p - q$ oe (where $0.5 < p < 1$ and $0 < q < 0.5$) or $p - (1 - r)$ oe (where $0.5 < p < 1$ and $0.5 < r < 1$) If 1st M1 scored, then may be implied by correct answer
	A1	awrt 0.910 condone 0.91 correct answer with no working scores 0
(b)	**M1**	for a valid attempt to find $\mathrm{P}(53.55 < W < 54.4)$ e.g. $"0.9772" - (1 - "0.0668")$ May be implied by awrt 0.044/0.0441
	M1	for a conditional probability in the form $\frac{p}{"0.9104"}$ where $0 < p <$ "0.9104" assuming independence is M0 e.g. $\frac{p \times "0.9104"}{"0.9104"}$
	A1	awrt 0.0483/0.0484 No fractions
(c)	**M1**	for standardising 64.58 and setting equal to z value where $0.5 < \lvert z \rvert < 0.6$ **or** for standardising 69.46 and setting equal to z value where $1 < \lvert z \rvert < 1.5$
	M1	for standardising 64.58 and setting equal to z value where $-0.6 < z < -0.5$ oe with compatible signs **and** for standardising 69.46

		and setting equal to z value where $1 < z < 1.5$ oe with compatible signs
	dM1	Dep on 1st M1 for attempting to solve their two linear equations (using substitution or elimination) leading to an equation in one variable Implied by either $\sigma = \text{awrt } 2.7$ or $\mu = \text{awrt } 66$
	A1	both $\sigma = \text{awrt } 2.7$ **and** $\mu = \text{awrt } 66$ **and** both 0.5244 (or better) **and** 1.2816 (or better) seen