Question Number	Scheme	Notes	Marks
3.			
3(a)	$\overline{x} = \frac{1}{2}(11.52 + 13.75) = 12.635$	12.635 (may be implied by correct CI)	B1
		Use of 1.96	B1
	$\left(\frac{\sigma}{\sqrt{n}} =\right) \frac{13.75 - 12.635}{1.96} (= 0.56887...)$ $\left(\frac{\sigma}{\sqrt{n}} =\right) \frac{13.75 - 11.52}{2 \times 1.96} (= 0.56887...)$	For attempt at standard error (may be implied by awrt 0.569)	M1
		Use of 1.6449 or better (1.644853…from calc) Use of 1.64 or 1.65 is B0	B1
	$12.635 \pm 1.6449 \times 0.56887...$	For $(\text{their } \overline{x}) \pm (\text{their } 1.6449)\left(\text{their } \frac{\sigma}{\sqrt{n}}\right)$ their $\frac{\sigma}{\sqrt{n}}$ must be numerical	M1
	90% CI is $(11.699..., 13.5707...)$	awrt $(11.7, 13.6)$ from correct working Correct answer with no working scores B1B1M1B0M1A1	A1
			(6)
3(b)	$4 \times 0.9^3 \times 0.1$ $= 0.2916$	$4p^3(1-p)$ (where $0 < p < 1$) awrt 0.292	M1 A1
			(2)
			Total 8