

Question 5 – 2:

5(a)(i)(a)	$\frac{(8-2) \times 180}{8 \times 2}$ oe	M2	M1 for $\frac{(8-2) \times 180}{8}$ or $\frac{360}{8}$ or $\frac{(2 \times 8 - 4) \times 90}{8}$
5(a)(i)(b)	174 or 173.8....	4	M3 for $\frac{1}{2} \times 6 \times OM$ oe or $\frac{1}{2} \times (OA)^2 \times \sin 45$ oe or $\frac{1}{2} \times 6 \times OA \times \sin 67.5$ oe where OA and OM are as in the M2 or M2 for $OM = 3 \times \tan 67.5$ oe or for $OA = \left(\frac{3}{\cos 67.5} \right)$ or $\frac{6 \times \sin 67.5}{\sin 45}$ oe or M1 for $\frac{OM}{3} = \tan 67.5$ oe or for $\frac{3}{OA} = \cos 67.5$ oe or for $\frac{\sin 45}{6} = \frac{\sin 67.5}{OA}$ oe
5(a)(ii)	193 or 193.0 to 193.1	3	M2 for $\pi \times \left(\frac{3}{\cos 67.5} \right)^2$ oe or M1 for $\frac{3}{r} = \cos 67.5$ or $\frac{\sin 45}{6} = \frac{\sin 67.5}{r}$
5(b)(i)	1.27 or 1.272 to 1.273	2	M1 for $\left[\frac{1}{2} \times \right] \pi \times 0.45^2 \times 4$ or $\frac{1}{2} \times \pi \times 0.45^2 [\times 4]$
5(b)(ii)	742 or 743	6	M5 for a method leading to the volume of water e.g. $4 \times \left\{ 2 \times \frac{\operatorname{invcos}\left(\frac{0.15}{0.45}\right)}{360} \times \pi \times 0.45^2 \right.$ $\left. - \frac{1}{2} \times 0.45^2 \times \sin \left(2 \operatorname{invcos}\left(\frac{0.15}{0.45}\right) \right) \right\}$ oe OR M2 $\left[2 \times \right] \frac{\operatorname{invcos}\left(\frac{0.15}{0.45}\right)}{360} \times \pi \times 0.45^2$ oe or $\left[2 \times \right] \frac{90 - \operatorname{invcos}\left(\frac{0.15}{0.45}\right)}{360} \times \pi \times 0.45^2$ oe or M1 for use of $\frac{\theta}{360} \times \pi \times 0.45^2$ oe M2 for $\frac{1}{2} \times 0.45^2 \times \sin \left(2 \operatorname{invcos}\left(\frac{0.15}{0.45}\right) \right)$ oe or $\frac{1}{2} \times 0.15 \times 0.45 \times \sin \left(\operatorname{invcos}\left(\frac{0.15}{0.45}\right) \right) [\times 2]$ oe
5(b)(ii)			or M1 for use of $\frac{1}{2} \times 0.45^2 \times \sin \theta$ oe or $\left[2 \times \right] \frac{1}{2} \times 0.15 \times 0.45 \times \sin \beta$ oe If 0 scored, SC1 for $\operatorname{invcos}\left(\frac{0.15}{0.45}\right)$ or $\operatorname{invsin}\left(\frac{0.15}{0.45}\right)$ or $\sqrt{0.45^2 - 0.15^2}$ soi