Question		Working	Answer	Mark	Notes
11		$\frac{1}{2}\pi r^2 = 227$ oe **or** $\pi r^2 = 227\times 2$ oe **or** $r^2 = 144.5...$ **or** $r = \sqrt{144.5...}(=12(.02...))$		5	M1 for a correct equation or a correct calculation to find the radius of the semicircle
		$\frac{2\pi\times"12"}{2}$ oe **or** $\pi\times"12"(=37.6(99...))$ **or** $\pi\times"12.02..."(=37.7(661...))$ **or** $\pi\times$[their radius]			M1 for a method to find the arc length of the semicircle ft their value for the radius as long as clearly identified (may be on the diagram or in the working)
		$\sqrt{15^2-"12"^2}(=9)$ **or** $\sqrt{15^2-"12.02..."^2}(=8.9(7...))$ $\sqrt{15^2-[\text{their radius}]^2}$			M1 for a complete method to find the height of the right angled triangle ft their value for the radius as long as clearly identified (may be on the diagram or in the working)
		$"12"\pi+2\times15+2\times"9"(=85.6(99...))$ **or** $"12.02..."\pi+2\times15+2\times"8.97..."(=85.7(09...))$ **or** $"12"\pi+48$ **or** $"12.02..."\pi+48$ **or** $"37.6(99...)"+15+15+"8.97..."+"8.97..."(=85.7(09...))$ **or** [arc length] $+2\times15+2\times$[*AB* or *DE*]			M1 dep on M2 for a method to find the perimeter including at least the arc length **and** one length of 15 **and** one of *AB* or *DE* ft their values for the arc length and *AB* or *DE* as long as clearly identified (may be on the diagram or in working) allow the error of addition of the radius (*OB* or OD) or the diameter *BD*
		Correct answer scores full marks (unless from obvious incorrect working)	85.7		A1 accept an answer in the range 85.6 – 85.8
					Total 5 marks