

Q1. (2017)

The area of the L-shape is 65 cm^2 .

Split it into two rectangles:

$$9(x) + (10 - x)(3x + 1) = 65$$

Expand:

$$9x + 30x + 10 - 3x^2 - x = 65$$

$$-3x^2 + 38x - 55 = 0$$

$$3x^2 - 38x + 55 = 0$$

Factorise:

$$(3x - 5)(x - 11) = 0$$

So,

$$x = \frac{5}{3} \quad \text{or} \quad x = 11$$

Since x must be less than 10 cm, $x = 11$ is impossible.

Final answer:

$x = \frac{5}{3} \text{ cm}$

Q2. (2019)

16	$\frac{x}{360} \times \pi \times (1.5r)^2$ or $\frac{1}{160} \pi x r^2$ or $0.019...x r^2$ or $\frac{2x}{360} \times \pi \times r^2$ or $\frac{1}{180} \pi x r^2$ or $0.017...x r^2$	M1	oe eg (working in radians) $\frac{1}{2} \times (1.5r)^2 \times x$ or $\frac{1}{2} \times r^2 \times 2x$
	$\frac{1}{160} \pi x r^2$ and $\frac{1}{180} \pi x r^2$ and A or $0.019...x r^2$ and $0.017...x r^2$ and A	A1	oe eg (working in radians) $\frac{9}{8} r^2 x$ and $r^2 x$ and A
	Additional Guidance		
	Methods must be algebraic, containing x , π and r		
	If a box is not ticked, must say 'A' without contradiction in working to award M1A1		
	To award A1 their areas must be in a comparable form eg $\frac{2.25}{360} \pi x r^2$ and $\frac{2}{360} \pi x r^2$ and A ticked		
	Ignore further incorrect working after A1 scored		