

This test is divided into non-calculator (20 minutes) and calculator (30 minutes) sections which can be delivered separately.

The following marks are awarded for each question.

B	Unconditional accuracy mark
M	Method mark – the correct method must be shown but there may be an arithmetic error; the sight of the value given in brackets implies the award of the method mark
A	Accuracy mark – unless the question specifies that working must be shown then the sight of the correct answer implies the award of full marks (unless the answer clearly comes from incorrect working)
C	Communication mark
P	Process mark to show correct process for problem solving. Any other process of a similar standard to achieve an accurate result is acceptable to achieve this mark
FT	Incorrect values may be followed through from one step to the next provided that the correct method is seen in each step and the only errors are arithmetic. This is shown in mark schemes by putting a number in inverted commas
OE	Or equivalent answer mark

Non-Calculator			
Q	Answer	Mark	Comment
1	$\pi \times 7 \times 7$	M1	
	49π	A1	
3	3.6(000)	B1	

5a	$(4 + 10) \div 2 \times 8$	M1	units not needed
	$56 \text{ (m}^2\text{)}$	A1	
5b	$8^2 + (10 - 4)^2 (= 100)$	M1	units not needed
	$4 + 8 + 10 + \sqrt{36}$	M1	
	32 (m)	A1	

 Calculator			
7	$8 \div 100 (= 0.08 \text{ m})$ or $0.15 \times 100 (= 15 \text{ cm})$	B1	could convert at any stage
	$\pi \times 8^2 (= 201.06\dots)$	M1	could work in cm or m
	$15 \times 15 (= 225)$	M1	could work in cm or m
	23.9... or 0.0000239...	A1	
	cm^2 or m^2	B1	units must fit their working
9	$\pi \times 5.2 (= 16.336\dots)$	M1	
	4 m = 400 cm or 5.2 cm = 0.052 m	B1	
	"400" \div "16.336" (= 24.4... or 24.5)	M1	
	24	A1	
11	$\pi \times 4.5^2 (= 63.6 \dots)$	M1	
	$\pi \times 4.5 \times 13 (= 183.78\dots)$	M1	
	247 (cm^2)	A1	units not needed; accept anything that rounds to 247

13	$(1.5 \times 2) \div 2 \times 8.7$	M1	
	13.05	A1	
	"13.05" = $\frac{4}{3}\pi r^3$	M1	dep on M1
	"13.05" $\times 3 \div 4\pi (= 3.11 = r^3)$	M1	r^3 should be 3.115
	($r =$) 1.46 ... (cm)	A1	accept anything that rounds to 1.46

Non-Calculator			
Question	Topic	Step	Mark
1	Use the formulae for the area of a circle, given the radius or diameter	6th	2
3	Convert between area measures (e.g. mm^2 to cm^2 , cm^2 to m^2 , and vice versa)	7th	1
5a	Deduce and use the formula for the area of a trapezium	6th	2
5b	Use and apply Pythagoras' theorem to solve problems in 2D	8th	3

 Calculator			
7	Use the formula for the area of a rectangle/square, use the formulae for the area of a circle, given the radius or diameter and convert between area measures (e.g. mm^2 to cm^2 , cm^2 to m^2 , and vice versa)	7th	5
9	Use the formula for the circumference of a circle	7th	4
11	Calculate the volume and surface area of pyramids, cones and spheres	9th	3
13	Solve problems including the volume of a triangular prism and sphere to calculate the radius of the sphere	10th	5

