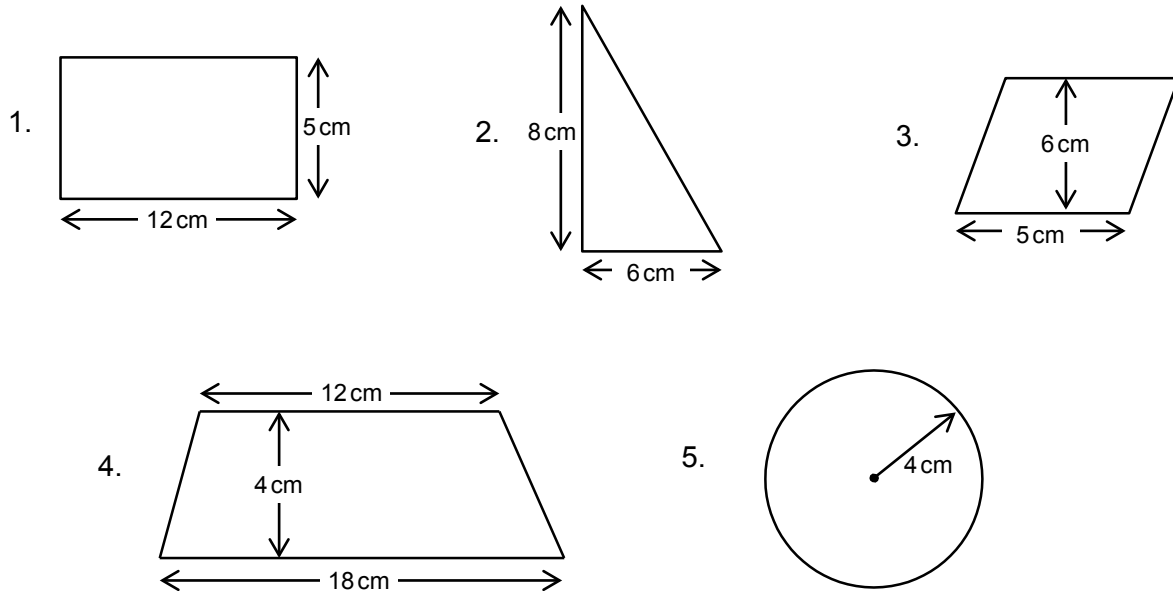


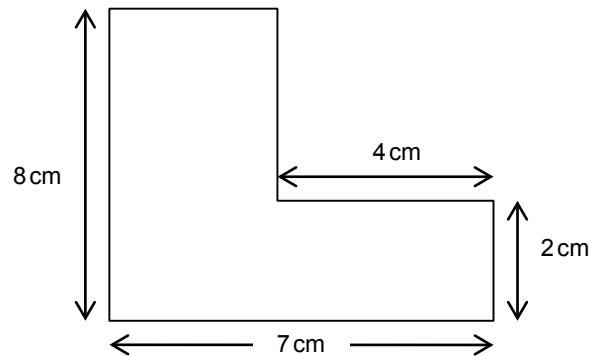
Topic Check In - 10.03 Area calculations

Calculators are allowed and answers should be rounded to 1 dp where appropriate.

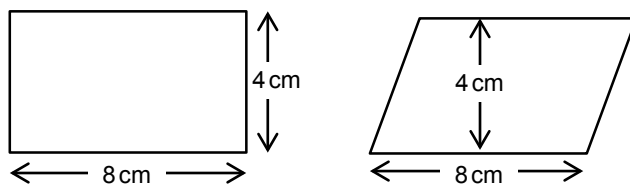
Calculate the area of the following shapes.



6. Explain why the area of the shape opposite is 32 cm^2 .



7. Explain why the area of the rectangle is the same as the area of the parallelogram in the diagrams below.



GCSE (9–1) MATHEMATICS

8. Explain why you cannot have a circle with an area of exactly 9 cm^2 .
9. How many circles with radius 2 cm can be drawn inside a square with area 64 cm^2 ?
The circles can touch but may not overlap.
10. A bag of grass seed will cover 20 m^2 . How many complete bags are needed to completely cover a circle of radius 10 m ?

Extension

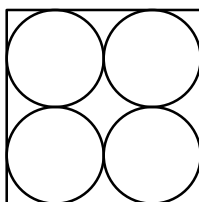
How many different shapes can you find with an area between 10 cm^2 and 11 cm^2 ? State the dimensions for each of the shapes, and show that each area is within the specified range of acceptable areas.



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Answers

1. 60 cm^2
2. 24 cm^2
3. 30 cm^2
4. 60 cm^2
5. 50.3 cm^2 (to 1 dp)
6. The sum of the area of two rectangles is $3 \times 8 + 4 \times 2$ or $7 \times 2 + 6 \times 3$.
7. A right-angled triangle can be moved from one end to the other end of the parallelogram to change the parallelogram into a rectangle (base \times height \equiv length \times width).
8. π is irrational so the answer to a circle area calculation will never be a whole number, it will always be rounded.
9. If $r = 2$ then $d = 4$ so 4 circles, arranged 2 by 2, will fit into a square of length 8 cm ($\sqrt{64} = 8$).



10. 16 bags (15.7 rounds up to 16)

Extension

Rectangle: 5.1×2 , etc

Triangle: 5.1×4 , etc

Circle: radius 1.8, etc ($1.78 < r \leq 1.87$)



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Assessment Objective	Qu.	Topic	R	A	G
AO1	1	Calculate the area of a rectangle.			
AO1	2	Calculate the area of a triangle.			
AO1	3	Calculate the area of a parallelogram.			
AO1	4	Calculate the area of a trapezium.			
AO1	5	Calculate the area of a circle.			
AO2	6	Calculate the area of a composite shape.			
AO2	7	Understand the link between the area of a rectangle and the area of a parallelogram.			
AO2	8	Understand why circle calculations must always be rounded.			
AO3	9	Apply the properties of simple shapes to solve a problem.			
AO3	10	Solve area word problems and round answers appropriately.			

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