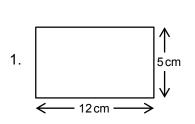
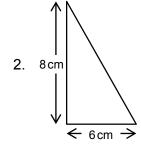
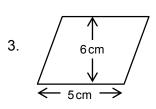
Topic Check In - 10.03 Area calculations

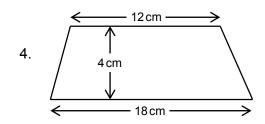
Calculators are allowed and answers should be rounded to 1 dp where appropriate.

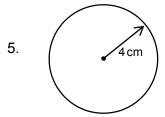
Calculate the area of the following shapes.



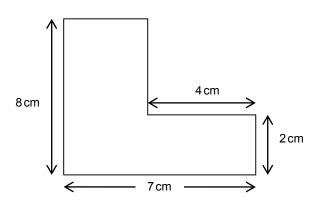




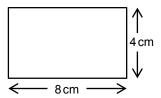


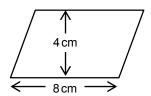


6. Explain why the area of the shape opposite is 32 cm².



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









- 8. Explain why you cannot have a circle with an area of exactly 9 cm².
- 9. How many circles with radius 2 cm can be drawn inside a square with area 64 cm²? The circles can touch but may not overlap.
- 10. A bag of grass seed will cover 20 m². How many complete bags are needed to completely cover a circle of radius 10 m?

Extension

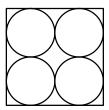
How many different shapes can you find with an area between 10 cm² and 11 cm²? State the dimensions for each of the shapes, and show that each area is within the specified range of acceptable areas.





Answers

- 1. 60 cm²
- 2. 24 cm²
- 3. 30 cm²
- 4. 60 cm²
- 5. 50.3 cm² (to 1 dp)
- 6. The sum of the area of two rectangles is $3 \times 8 + 4 \times 2$ or $7 \times 2 + 6 \times 3$.
- 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 × height ≡ length × 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 < $r \le 1.87$)





We'd like to know your view on the resources we produce. By clicking on the 'Like' or 'Dislike' button you can help us to ensure that our resources work for you. When the email template pops up please add additional comments if you wish and then just click 'Send'. Thank you.

OCR Resources: the small print

OCR's resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources. We update our resources on a regular basis, so please check the OCR website to ensure you have the most up to date version.

© OCR 2015 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

 ${\tt OCR\ acknowledges\ the\ use\ of\ the\ following\ content:\ Maths\ and\ English\ icons:\ Air 0 ne/Shutterstock.com}$





| Assessment Objective | Qu. | Topic | R | Α | 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. | | | |

| Assessment Objective | Qu. | Topic | R | Α | 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. | | | |

| Assessment Objective | Qu. | Topic | R | Α | 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. | | | |

| 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. | | | |



