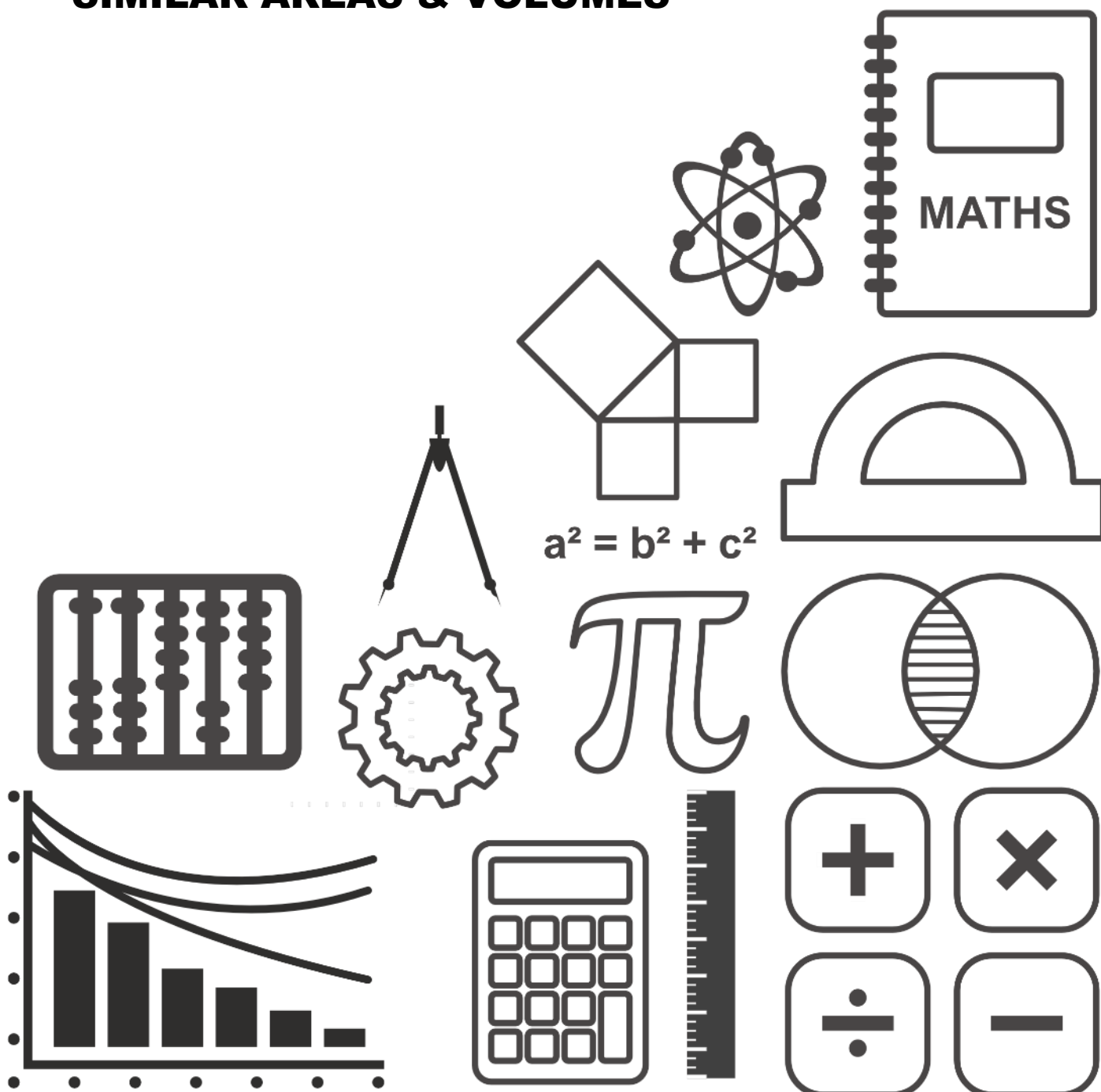
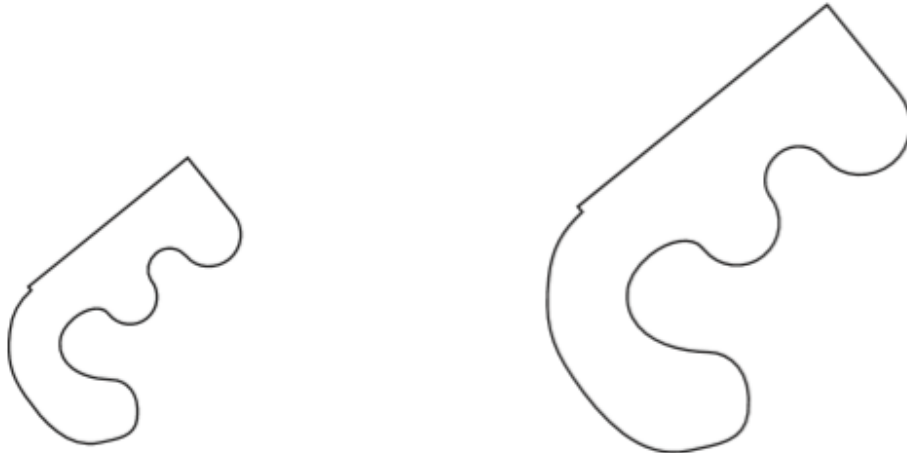


MATHSDIY

GCSE TOPIC BOOKLET SIMILAR AREAS & VOLUMES



1. The diagram shows a shape and an enlargement of the shape.



Original shape

Enlarged shape

Diagram not drawn to scale.

The height of the original shape is 1.6 cm and the height of the enlarged shape is 3.2 cm. The area of the original shape is 5.2 cm². Find the area of the enlarged shape.

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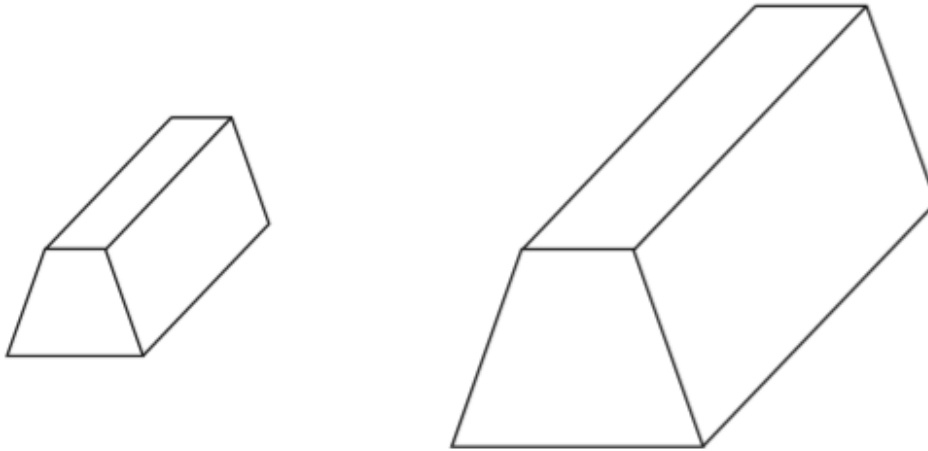
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[2]

2. The prisms shown below are similar.



Diagrams not drawn to scale.

The area of the uniform cross-section of the smaller prism is 5 cm^2 and its length is 3 cm . The area of the cross-section of the larger prism is 80 cm^2 . Calculate the volume of the larger prism.

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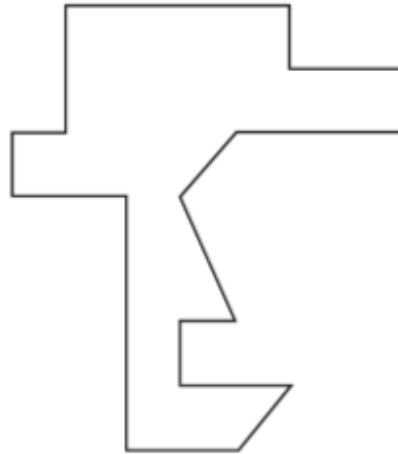
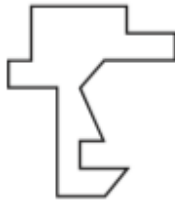
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[5]

3. The diagram shows two **similar** shapes.



Diagrams not drawn to scale.

Each length on the larger shape is three times the corresponding length on the smaller shape.
 The area of the larger shape is 360 cm^2 . Find the area of the smaller shape.

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[3]

4. The diagram shows two **similar** shapes.

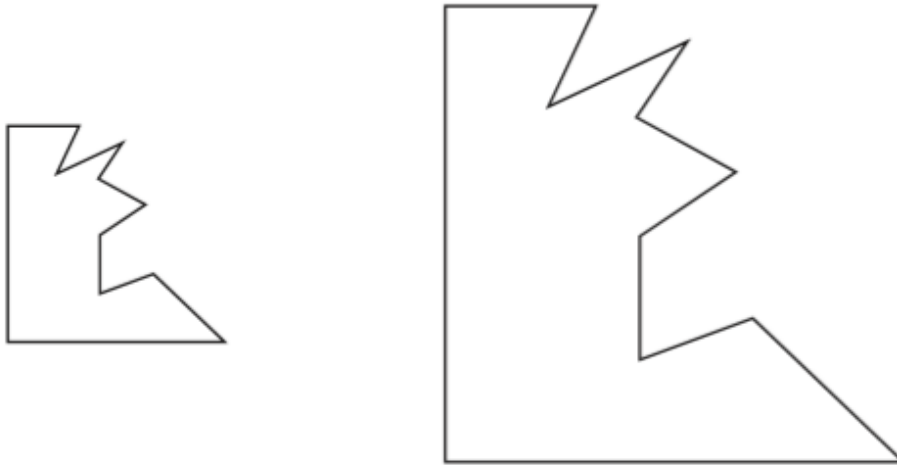


Diagram not drawn to scale.

Each length on the larger shape is three times the corresponding length on the smaller shape.
 The area of the larger shape is 90 cm^2 . Find the area of the smaller shape.

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[3]

5. The diagram shows two similar shapes.

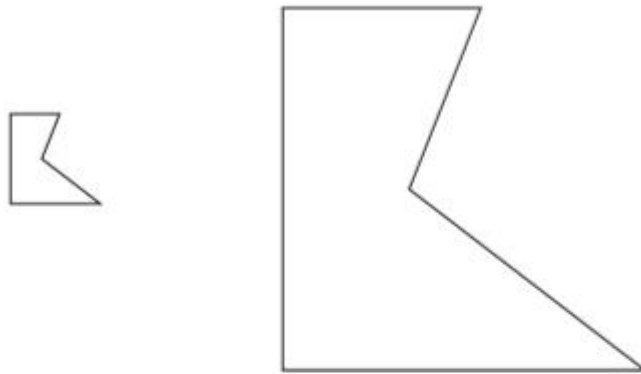


Diagram not drawn to scale

Each length on the larger shape is four times the corresponding length on the smaller shape. The area of the smaller shape is 3.5 cm^2 . Find the area of the larger shape.

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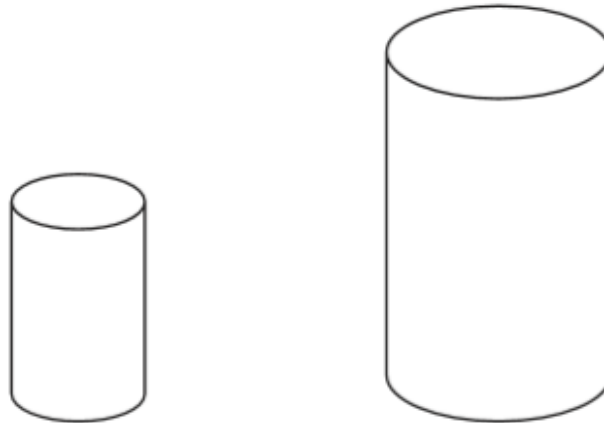
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Area of larger shape cm^2

[3]

6. The diagram shows two similar cylinders.



Diagrams not drawn to scale.

The areas of the ends of the smaller and larger cylinders are 16 cm^2 and 100 cm^2 respectively. Given that the height of the larger cylinder is 12.5 cm , find the height of the smaller cylinder.

[3]

7. The diagram shows two shapes.

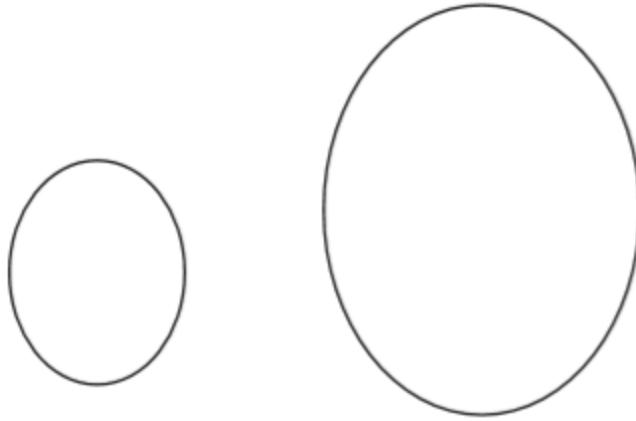


Diagram not drawn to scale.

The larger shape is an enlargement of the smaller shape with a scale factor 3. The area of the smaller shape is 5 cm^2 . Calculate the area of the larger shape.

[3]

9.

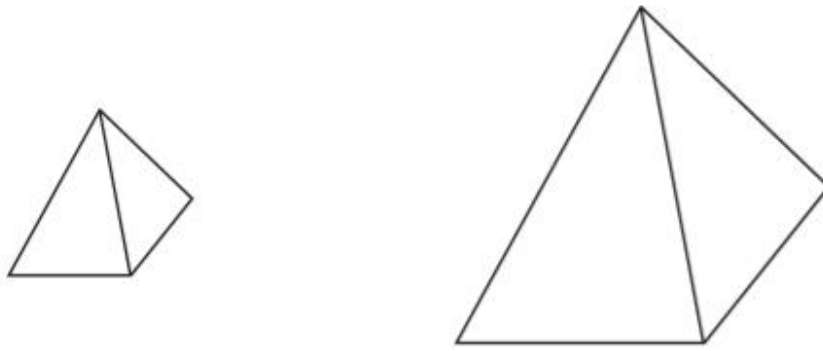


Diagram not drawn to scale.

The diagram shows two similar square based pyramids, the volume of the smaller pyramid is 30 cm^3 and the volume of the larger pyramid is 1920 cm^3 .
 The length of the side of the base of the smaller square based pyramid is 5 cm.
 Calculate the length of the side of the base of the larger pyramid.

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[3]