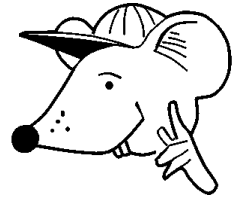


MATHEMATICS



Shape Booster Pages

Equipment

Paper, pencil, ruler, tracing paper.

MathSphere

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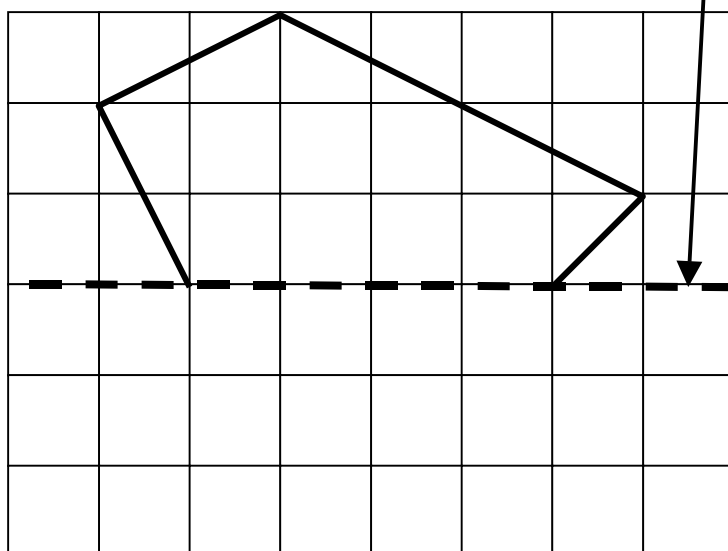
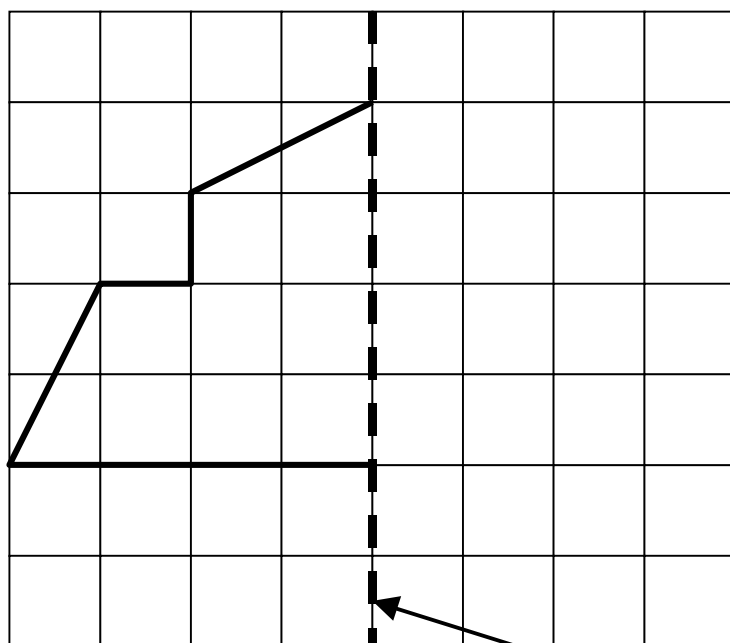
Structure

The questions in this module provide practice in the type of questions found in the topic of SHAPE for levels 3 and 4 in the NCT test papers (SATs).

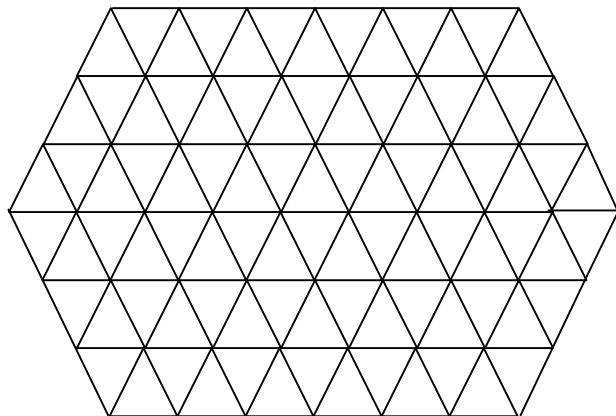
They are designed to help children who are hesitant around the level 3/4 boundary and who could be given a better chance to obtain level 4 with suitable extra practice.

The difficulty of the questions generally increases as children progress from the beginning of the module to the end.

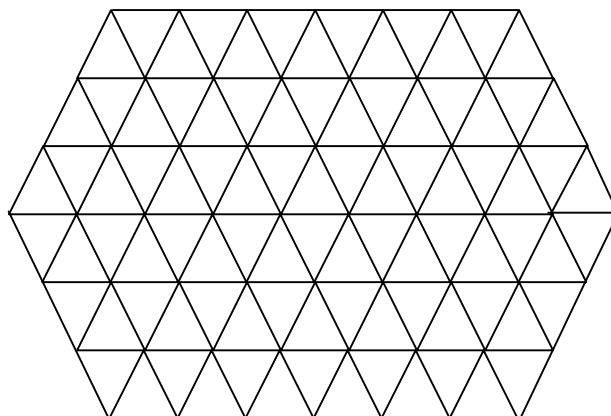
- 1) Reflect these shapes in the mirror lines. You may use tracing paper if you wish.



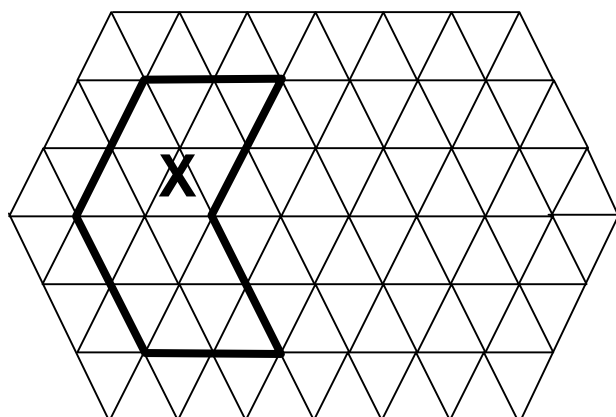
- 1) Draw a regular hexagon on this grid.



- Draw an equilateral triangle on this grid.



- 2) On the grid draw another shape that has the **same area** as shape **X**.



Say which statements are true about shape **X**.

Write **true** or **false** in the boxes

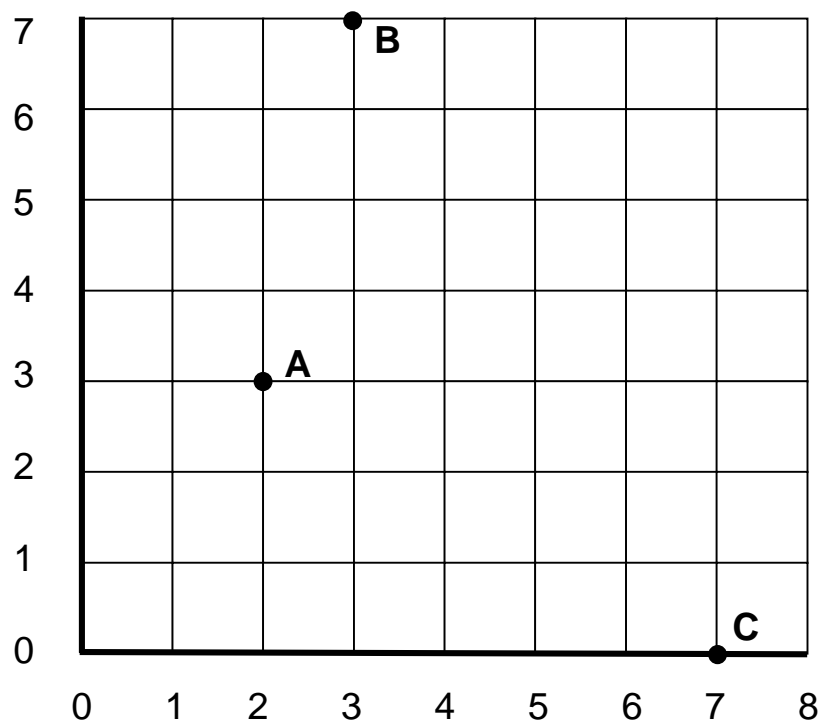
- a) Shape **X** has an area of 16 triangles.

- b) Shape **X** has one line of symmetry.

- c) Shape **X** is a hexagon

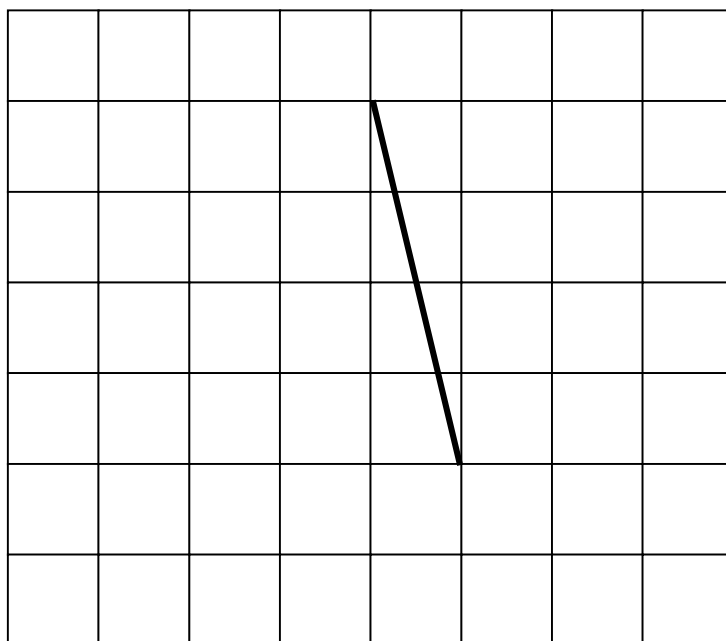
- d) Shape **X** has six vertices.

1) Write down the co-ordinates of the points **A**, **B** and **C** on the grid.



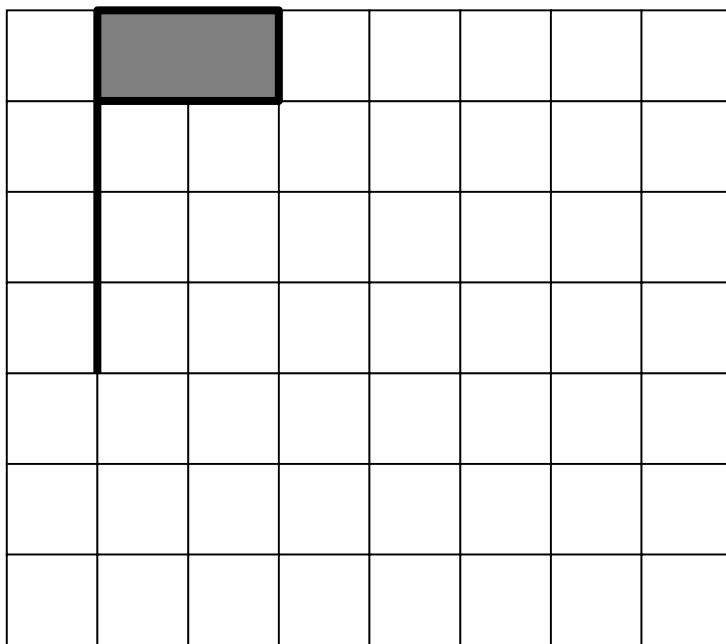
A is (,) **B** is (,) **C** is (,)

2)



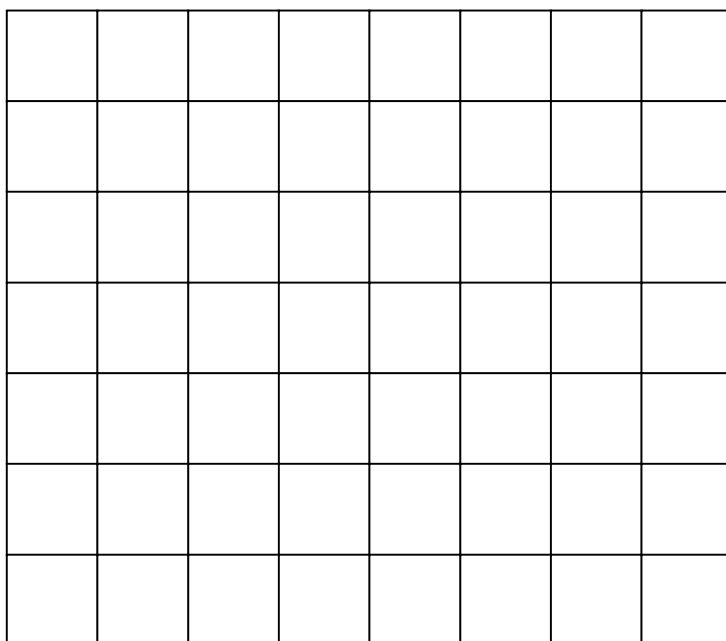
Draw two more straight lines joining onto the one in the diagram to make an **isosceles triangle**.

1)

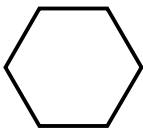
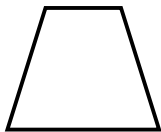
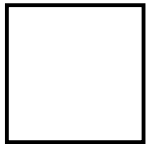
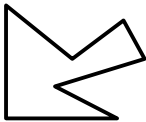


Draw this flag after it
has been **rotated**
by 90° clockwise

- 2) Divide this grid into two equal halves.
You must not draw one straight line across the middle of the grid!
Find another way to do it.



- 1) Tick the boxes to show the properties of each shape.
One has been done for you.

Shape	Has line symmetry	Has some parallel sides	Has one or more right angles	Is regular	Has more than five sides
	✓	✓		✓	✓
					
					
					

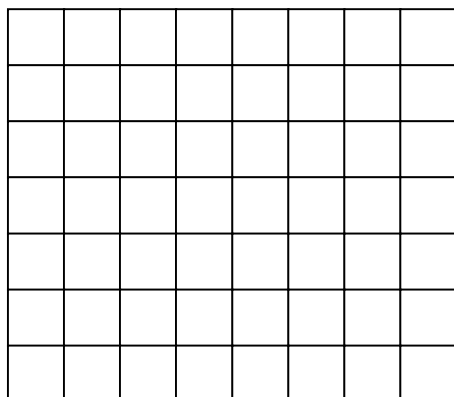
- 2) How many faces does a **triangular prism** have?

How many faces does a **cuboid** have?

How many faces does a **cube** have?

How many faces does a **square based pyramid** have?

- 1) On the grid draw a **pentagon**.
It should have only **one pair of parallel sides**.



- 2) What is the volume of a **cuboid 6cm long, 3cm wide and 2cm high**?

cm ³

- 3) A cuboid has a **volume of 48 cm³**.
What size could it be?

Length =

cm

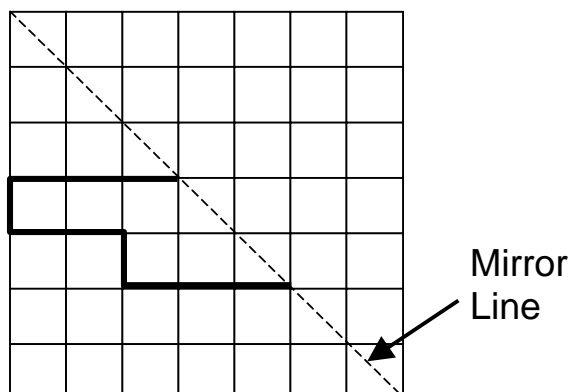
Width =

cm

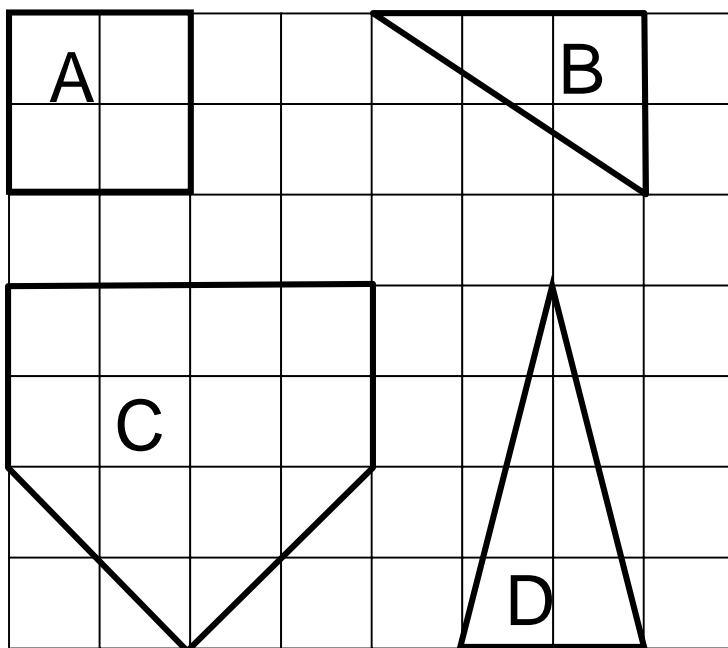
Height =

cm

- 4) Reflect the shape in the mirror line. You may use tracing paper if you wish.

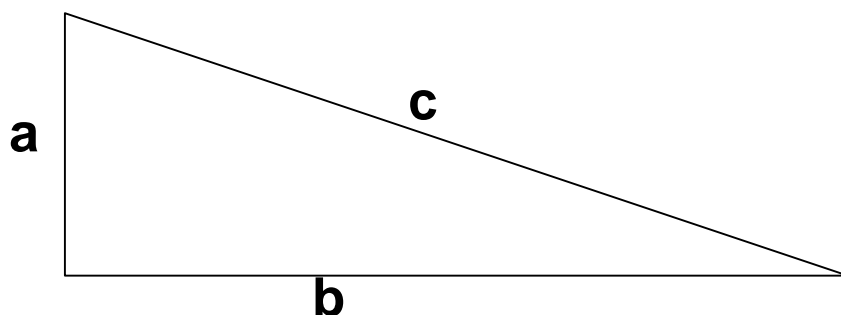


1)



Put rings round the two shapes that have the same area.

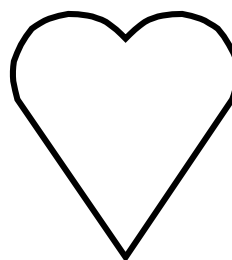
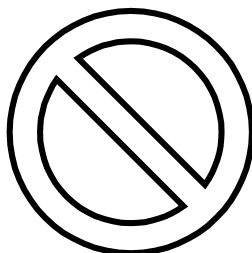
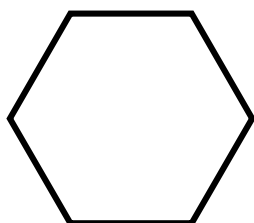
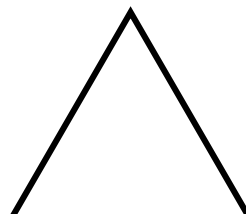
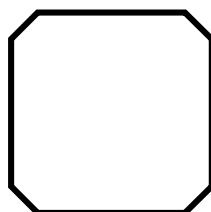
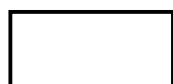
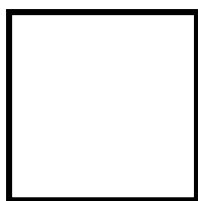
2) Measure the **three sides** of this triangle to the nearest millimetre.



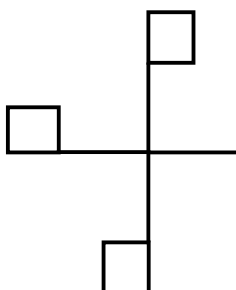
a = b = c =

What is the **perimeter** of the triangle?

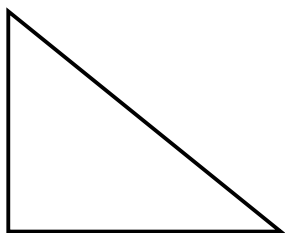
1) What is the order of rotational symmetry of these shapes:

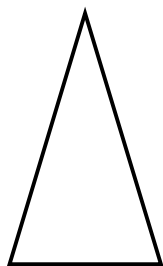


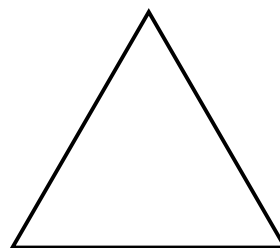
2) Add a rectangle to this shape so that it has rotational **symmetry order 4**.



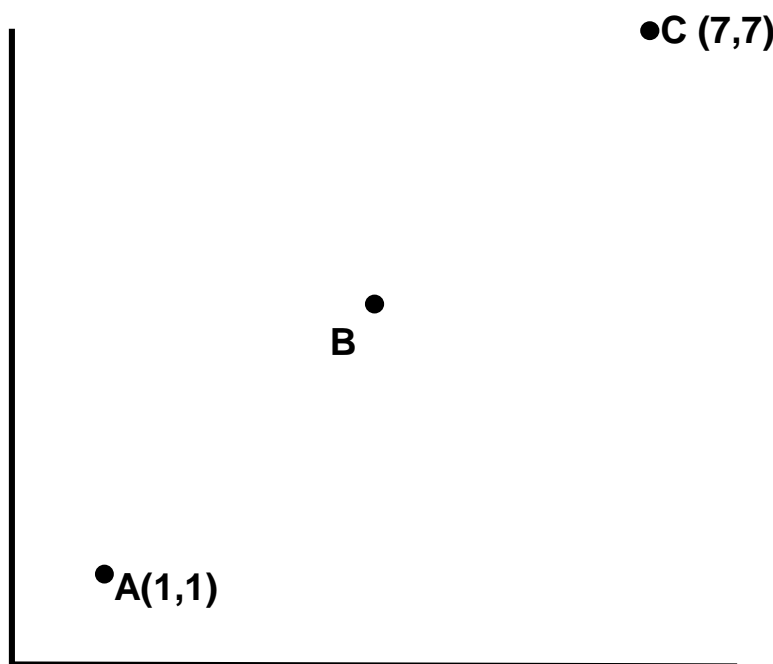
1) What types of triangles are these:







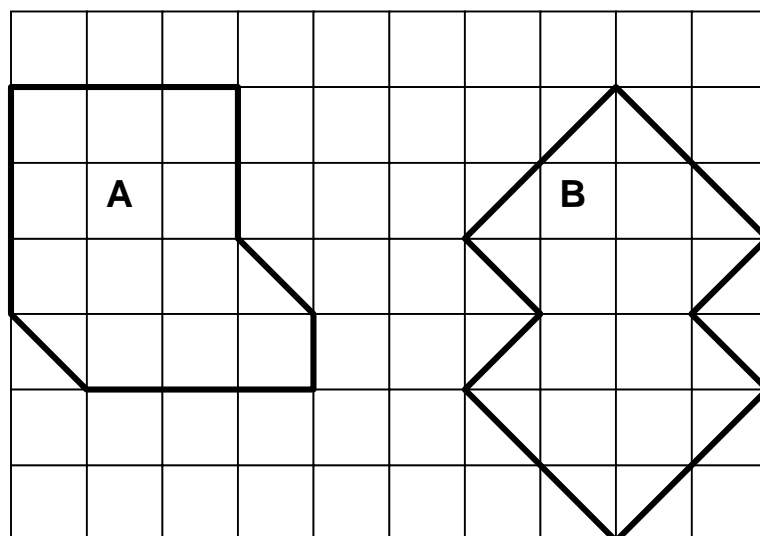
2) Point **B** is half way between points **A** and **C**.
What are the co-ordinates of the point **B** ?



The co-ordinates of **B** are:

(,)

1) Each square in this grid has an area of **1 square centimetre**.

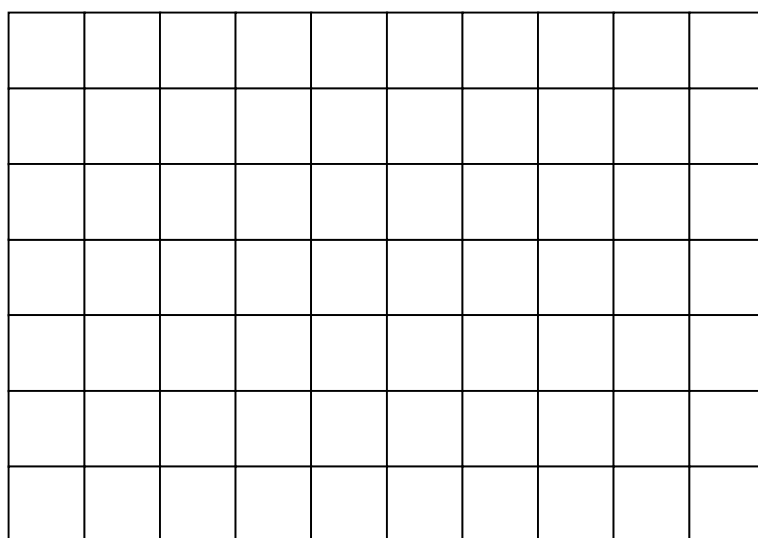


What are the areas of the shapes A and B ?

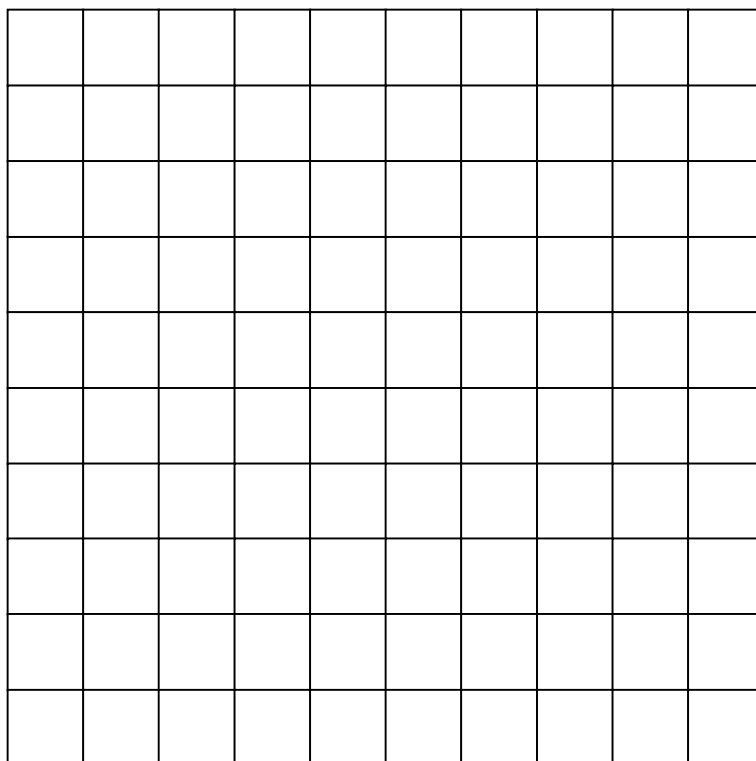
Area of shape **A** is square centimetres.

Area of shape **B** is square centimetres.

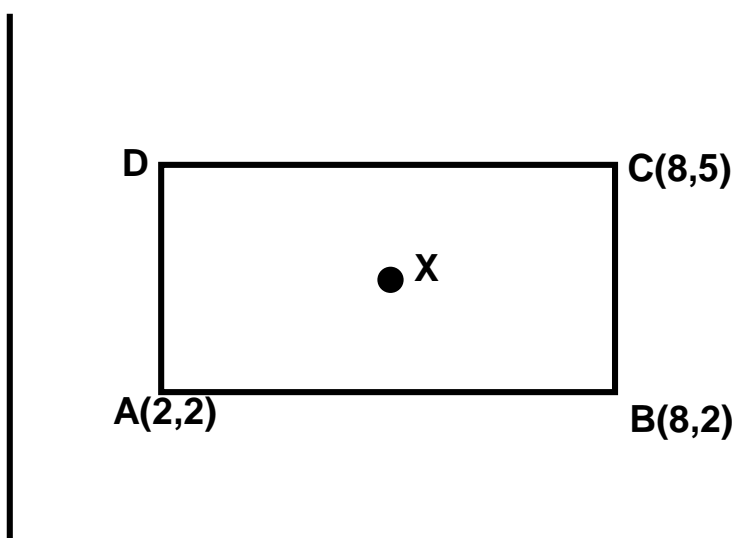
2) On this grid draw a net for a cube **1cm by 1cm by 1cm**.



1) On this grid draw a net for a cuboid **3cm by 3cm by 2cm**.



2)



What are the co-ordinates of **D** ?

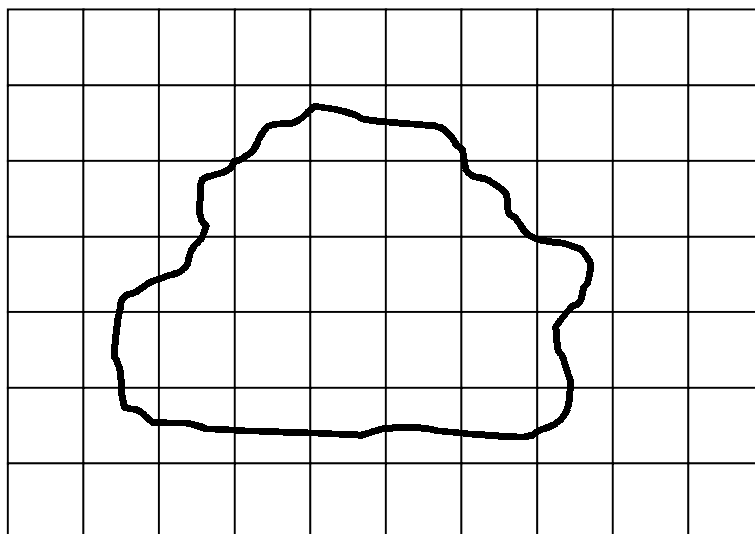
(,)

X is the middle of the rectangle.

What are the co-ordinates of **X** ?

(,)

1)

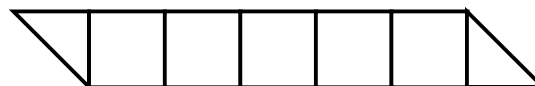
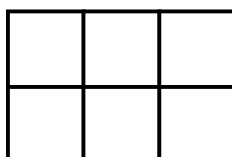
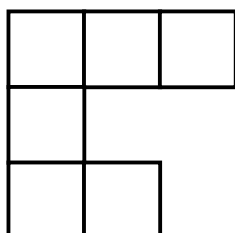


Estimate the **area** of the shape drawn on the grid.

Area =

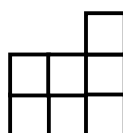
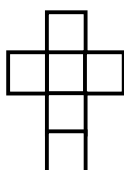
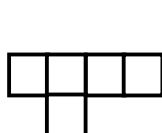
squares

2) Here are three shapes.



Write one thing that is the same about **all three shapes**.

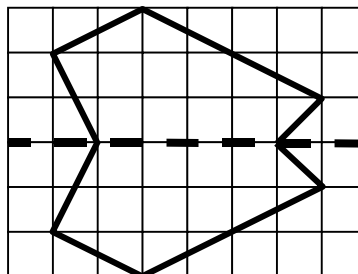
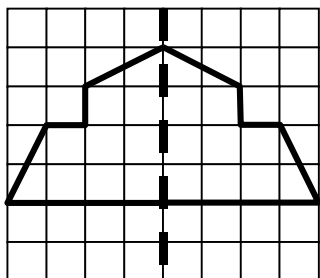
Tick the shape that is a net of a **cube**.



Answers

Page 3

1.



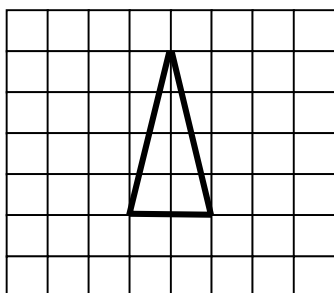
Page 4

1. Any sized regular hexagon. Any sized equilateral triangle
 2. Any shape with area of 16 triangles.
- All the statements are **true**.

Page 5

1. A(2,3) B(3,7) C(7,0)

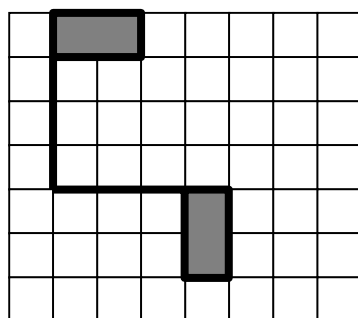
2.



or any other isosceles triangle.

Page 6

1.



Rotated image may be in any position.

2. Any division into two equal halves except a straight line passing through the centre.

Answers (Contd)**Page 7**

1.

Reg hex yes yes yes yes

Trapezium yes yes

Square yes yes yes yes

Irreg hept yes yes

2. triang prism 5

cuboid 6

cube 6

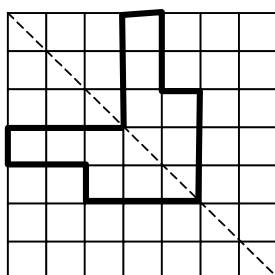
squ pyramid 5

Page 8

1. Any pentagon with one pair of parallel sides.

2. 36 cm^3 3. Lengths of sides must have a product of 48 eg $2 \times 3 \times 8$

4.

**Page 9**

1. A and D

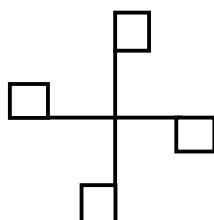
2. $a = 3.5\text{cm}$ or 35mm $b = 10.3\text{cm}$ or 103mm $c = 10.9\text{cm}$ or 109mm Perimeter is total of three measurements (in this case 24.7cm or 247mm)**Page 10**

1.

4 4 3 2

6 2 1 (or no rotational symmetry)

2.



Answers (Contd)**Page 11**

1. Right angled triangle Isosceles triangle Equilateral triangle

2. B is point (4,4)

Page 12

1. A is 13 square cm B is 14 square cm 2. Any workable net for a cube.

Page 13

1. Any workable net for the cuboid. 2. D is point (2,5) X is point (5, 3.5)

Page 14

1. Area is approximately 19-22 squares.

2. Any valid comment, in particular that the three shapes have the same area.

The middle shape is the net of a cube.