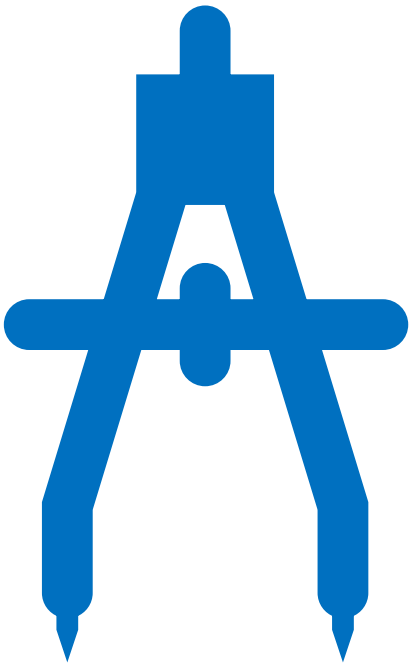
Version 1



Year 6

Mathematics

Practice Questions

Geometry

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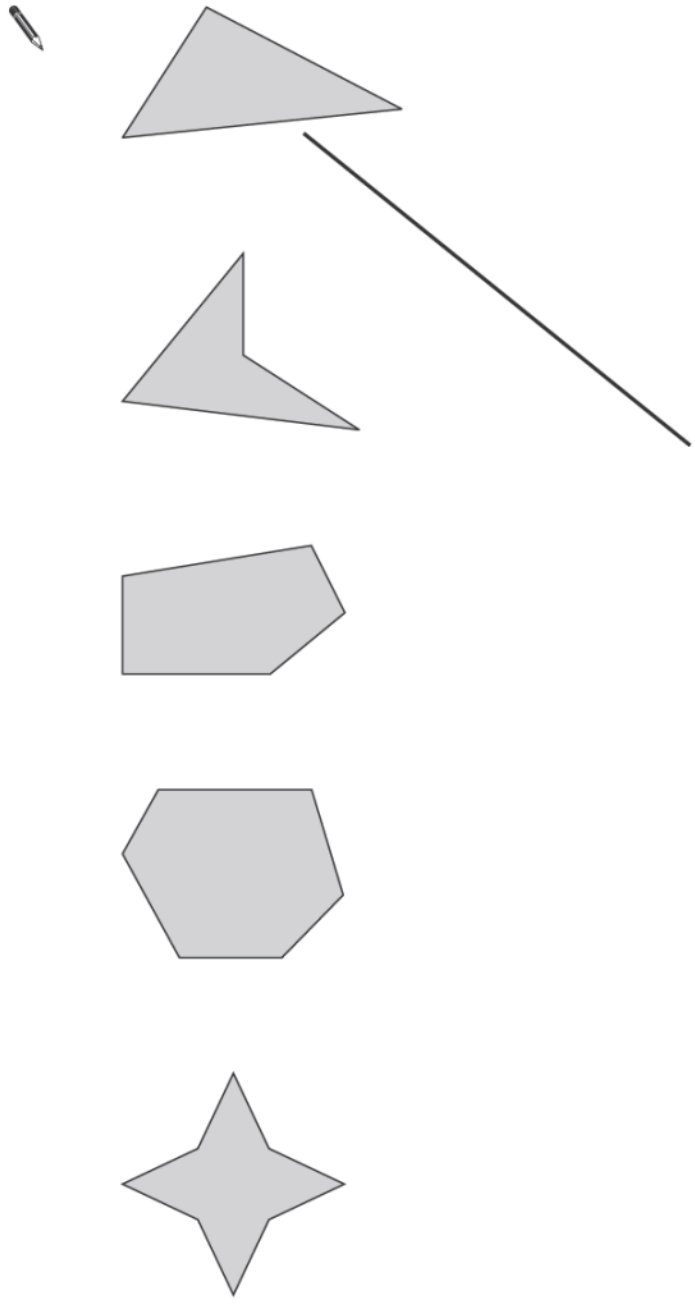
Section One:
2D Shapes

1 Match each shape to the correct name.

[2012]

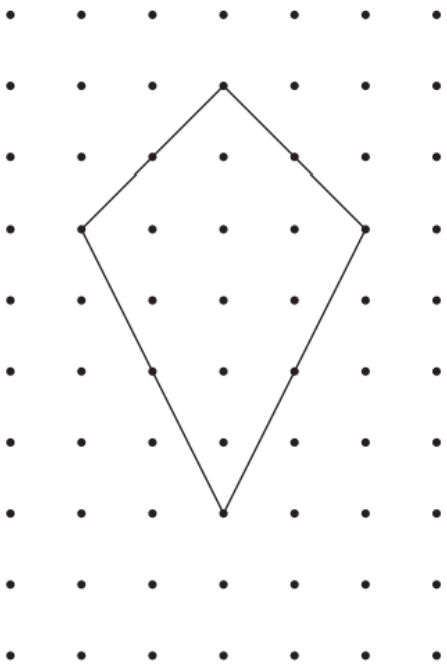
One has been done for you.



[2 marks]

13 Here is a shape on a grid.

[2014]



For each statement, put a tick (✓) if it is true.
Put a cross (✗) if it is not true.

The shape is a quadrilateral. ☐

The shape has 2 lines of symmetry. ☐

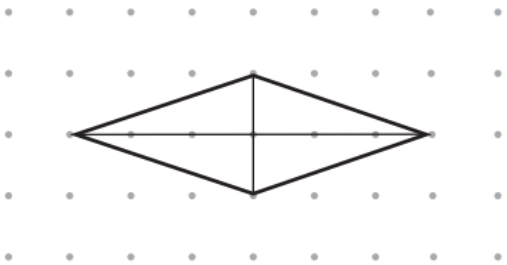
The shape is a parallelogram. ☐

The shape has one right angle. ☐

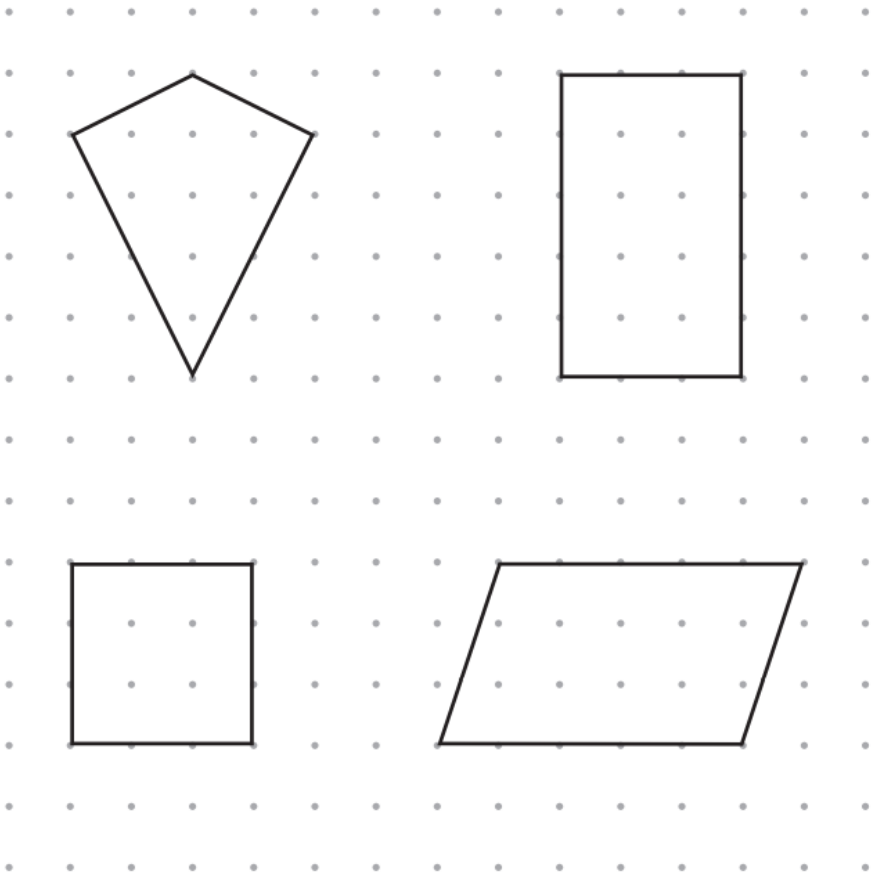
[2 marks]

17 The diagonals of this quadrilateral cross at right angles.

[2016]



Tick **all** the quadrilaterals that have diagonals which cross at right angles.

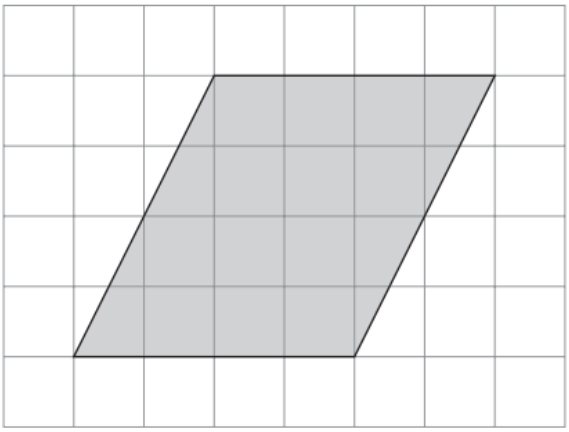


[2 marks]

20

18 Look at the shaded shape on the square grid.

[Extra]



For each statement below, tick (✓) to show if it is True or False.

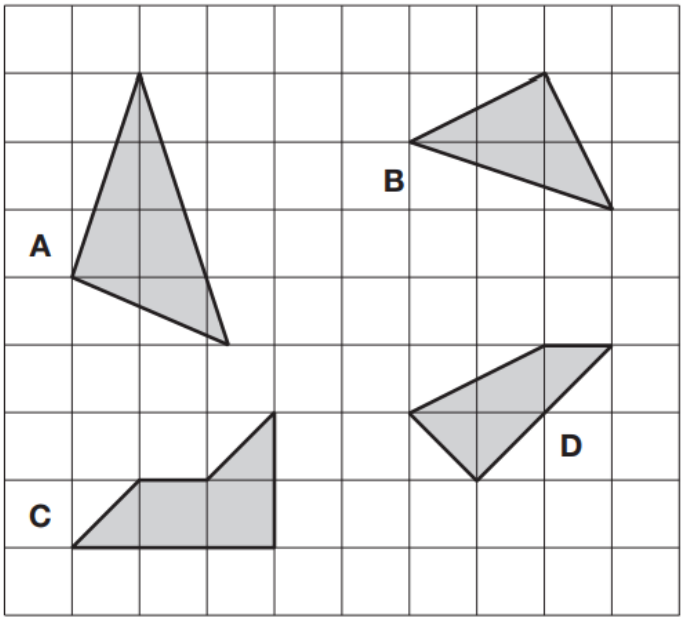
	True	False
The shaded shape is a quadrilateral.	☐	☐
The shaded shape has four equal sides.	☐	☐
The shaded shape has four equal angles.	☐	☐
The shaded shape has two pairs of parallel sides.	☐	☐

[2 marks]

21

22 Here are four shapes on a square grid.

[2014]



Write the letters of all the shapes that have exactly two sides which are equal in length.

_____

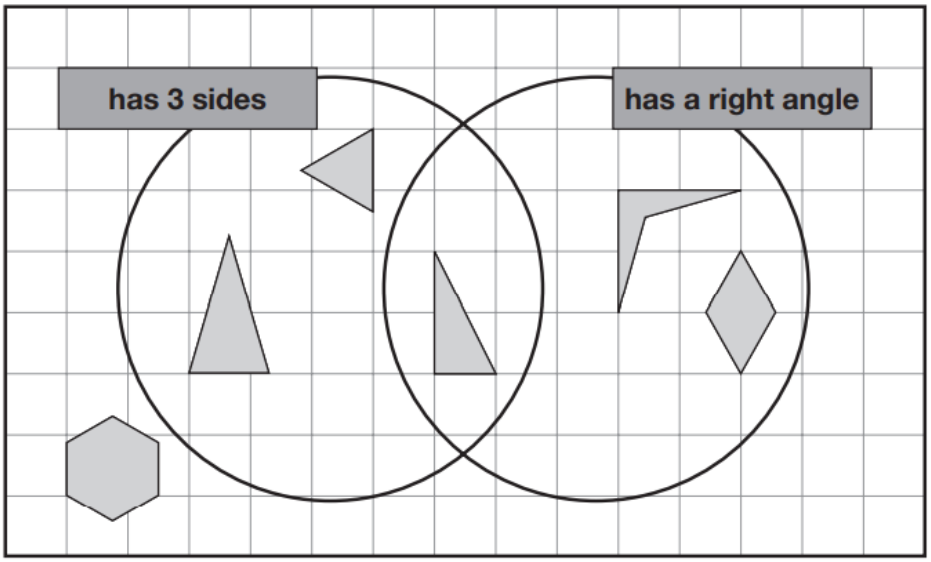
[1 mark]

---

23 Here is a diagram for sorting shapes.

[2008]

One of the shapes is in the wrong place. Put a cross (✘) on it.



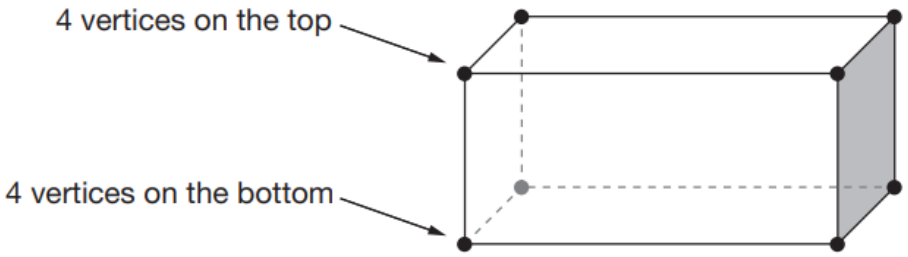
[1 mark]

22

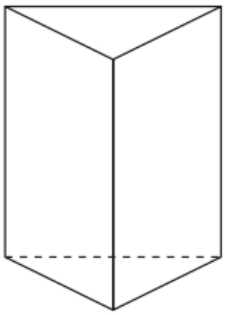
Section Two:
3D Shapes

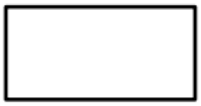
1 A cuboid has **8 vertices**.

[Extra]



How many vertices does this 3-D shape have?





A different 3-D shape has **8 vertices**.

It has **6 faces**. Each face is the **same**.

Put a ring around the correct name for this 3-D shape.

square pyramid cylinder

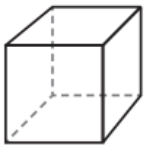
cube rectangle

[1 mark]

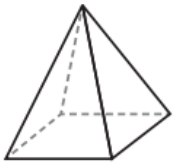
2 Here are diagrams of some 3-D shapes.

[2017]

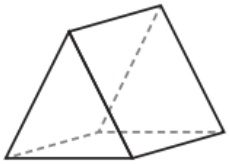
Tick each shape that has the same number of faces as vertices.



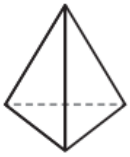
Cube ☐



Square-based pyramid ☐



Triangular prism ☐



Triangular-based pyramid ☐

[2 marks]

---

3 This table shows information about four solid shapes.

[2005]

Complete the table.

One has been done for you.

	number of **flat** surfaces	number of **curved** surfaces
sphere	0	1
cone		
cuboid		
cylinder		

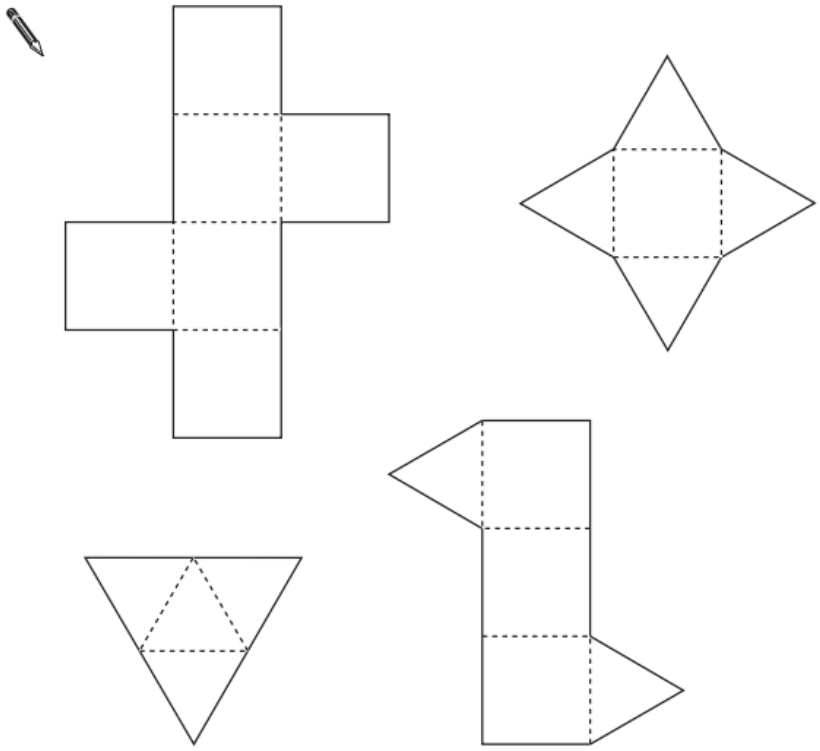
[2 marks]

26

14 Here are some nets of shapes.

[2008]

For each net, put a tick (✓) if it folds to make a **pyramid**.
Put a cross (✗) if it does not.



[2 marks]

---

15 The table shows information about three solid shapes.

[New]

Complete the table.

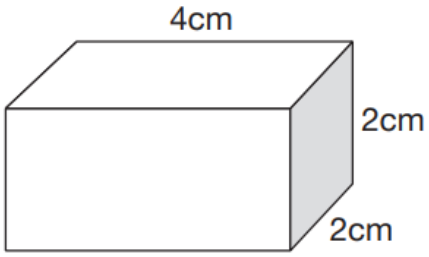
	number of **faces**	number of **vertices**
cube	6	
triangular prism		
square-based pyramid		

[2 marks]

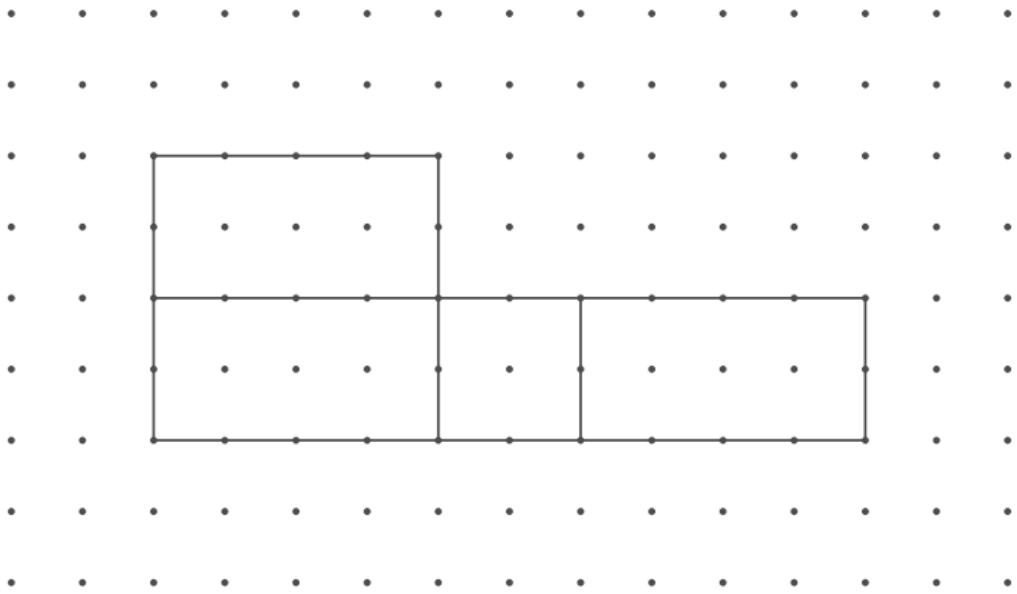
27

16 Look at the cuboid below.

[2015]



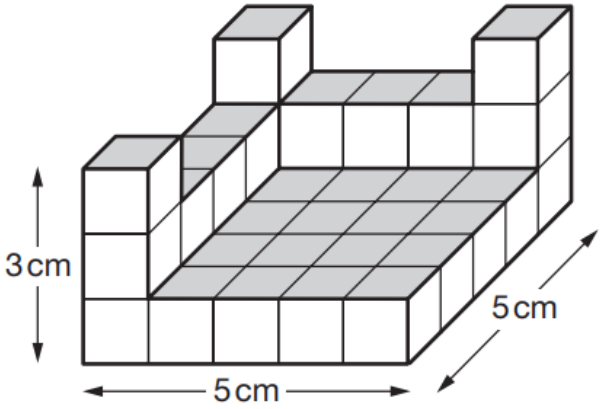
Draw **two** more faces to complete the net of the cuboid.



28 [2 marks]

22 This shape is made of wooden centimetre cubes.

[2015]



Not actual size

How many **more** centimetre cubes are needed to make it into a solid cuboid 3 cm tall, 5 cm long and 5 cm wide?

[1 mark]

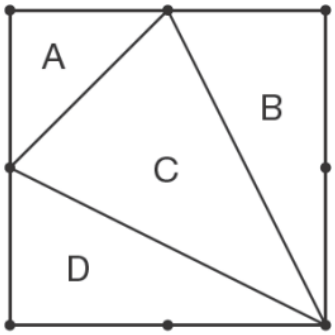
29

Section Three: Triangles

4 [2012]

This diagram shows a square with dots at the vertices and at the middle of each side.

The square is divided into four triangles, **A**, **B**, **C** and **D**.



Write the letters of all the triangles that have a **right angle**.

_____

Write the letters of all the **isosceles** triangles.

_____

[2 marks]

---

5 [Extra]

Anna has four **different** triangles.

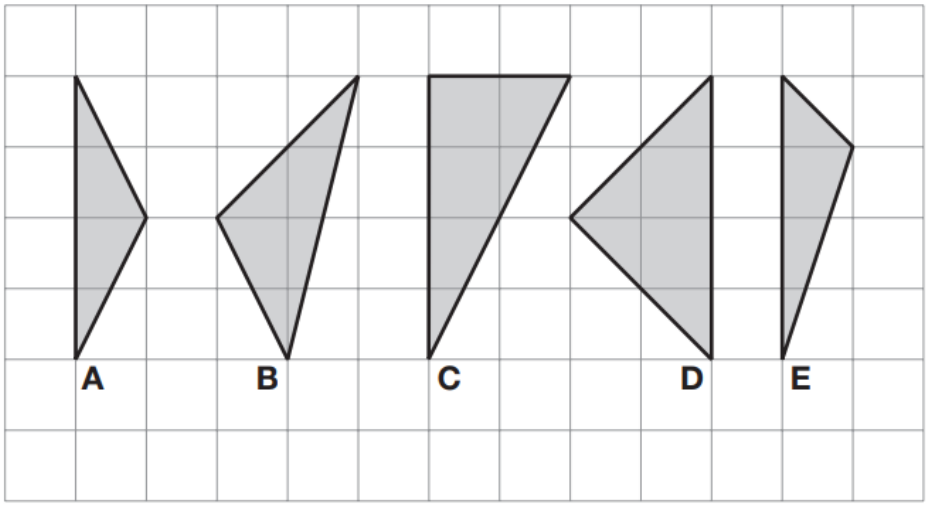
Complete the table to show the size of the angles in each triangle.

Type of triangle	Angle 1	Angle 2	Angle 3
Isosceles	90°		
Right-angled	80°		
Isosceles	70°		
Isosceles	70°		

[2 marks]

6 Here are five shaded triangles on a square grid.

[2010]



Write the letter of each triangle that has a right angle.

_____

Write the letter of each triangle that has two equal sides.

_____

[2 marks]

---

7 A triangle has **three equal sides**.

[Extra]

Write the sizes of the **angles** in this triangle.

_____ °, _____ °, _____ °

A **right-angled triangle** has **two equal sides**.

Write the sizes of the **angles** in this triangle.

_____ °, _____ °, _____ °

[2 marks]

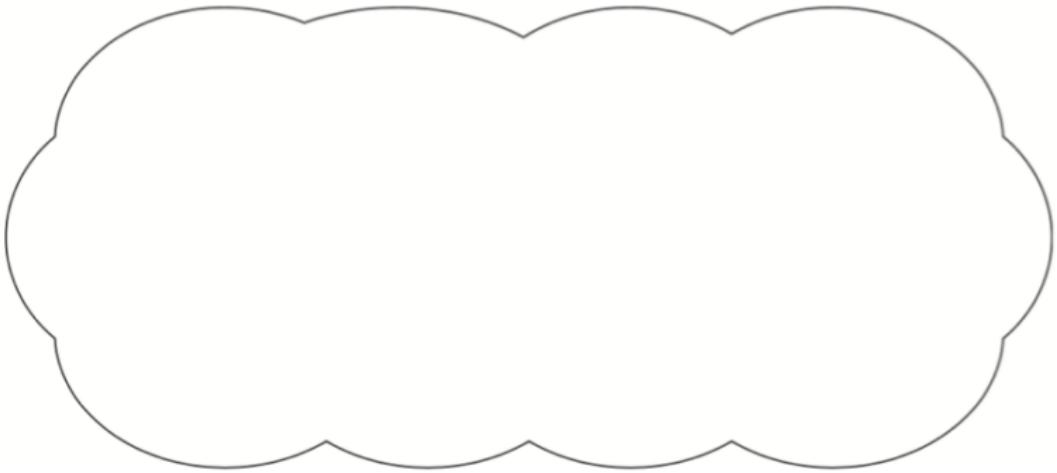
9 Jamie draws a triangle.

[2007]

He says,

'Two of the three angles in my triangle are obtuse'.

Explain why Jamie **cannot** be correct.



[1 mark]

---

10 Here are four statements.

[2005]

For each statement put a tick (✓) if it is **possible**.
Put a cross (✗) if it is **impossible**.

A triangle can have 2 acute angles. ☐

A triangle can have 2 obtuse angles. ☐

A triangle can have 2 parallel sides. ☐

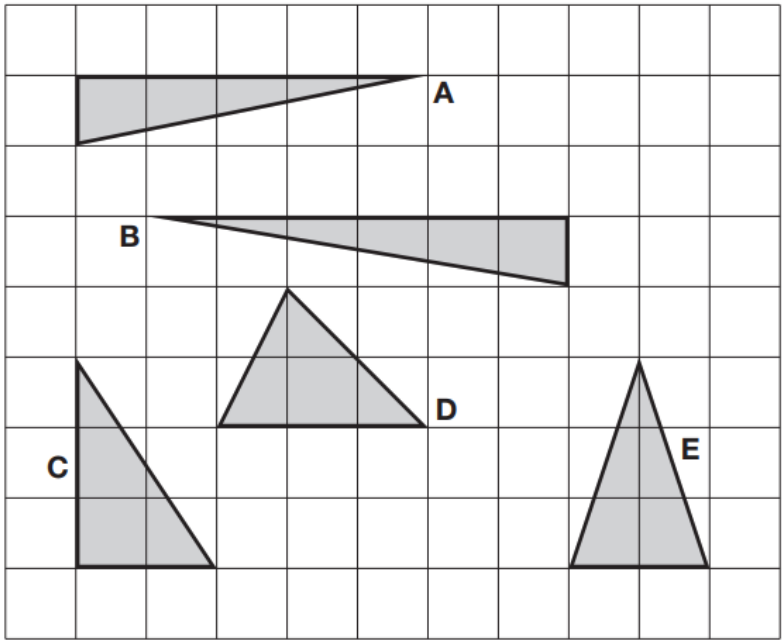
A triangle can have 2 perpendicular sides. ☐

[2 marks]

36

13 Here are five triangles on a square grid.

[2016]



Four of the triangles have the same area.

Which triangle has a **different** area?

[1 mark]

---

14 Is it possible to draw a triangle with **sides** 150cm, 10cm and 10cm?

[Extra]

☐ Yes ☐ No

Explain your answer.

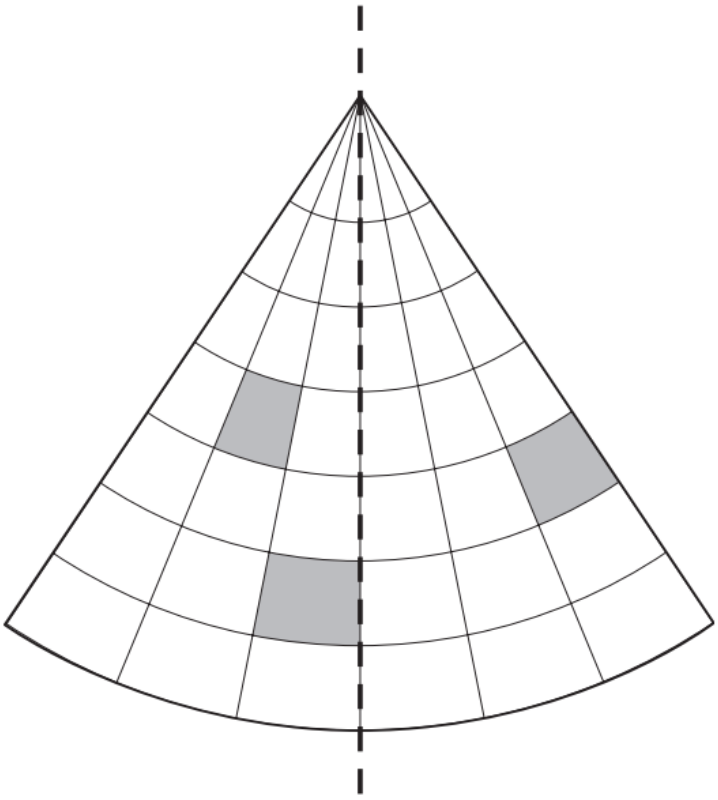
[1 mark]

37

Section Four: Symmetry

1 Draw the reflection of **all** the shaded shapes in the mirror line.

[2013]

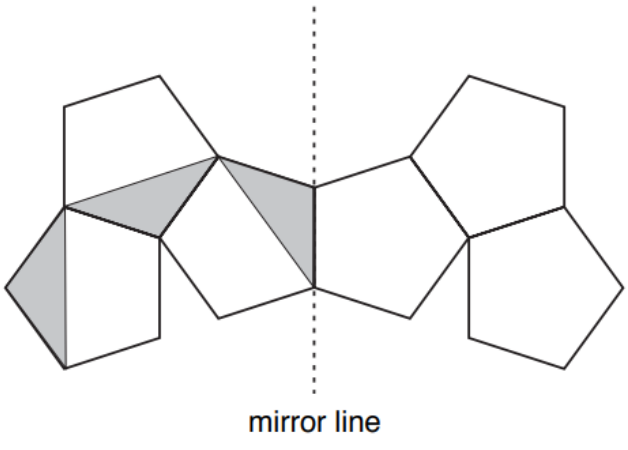


[1 mark]

---

2 Draw in and shade 3 triangles to complete the reflection in the mirror line.

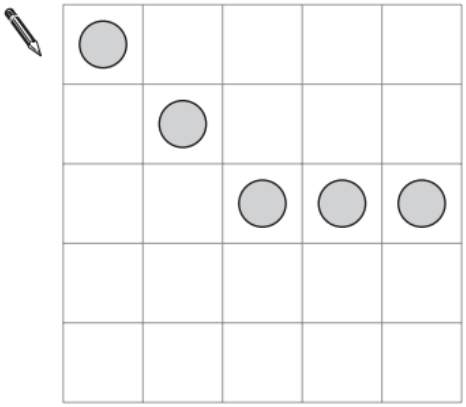
[Extra]



[1 mark]

3 [2008]

Draw **two** more circles on this grid to make a design that has a line of symmetry.



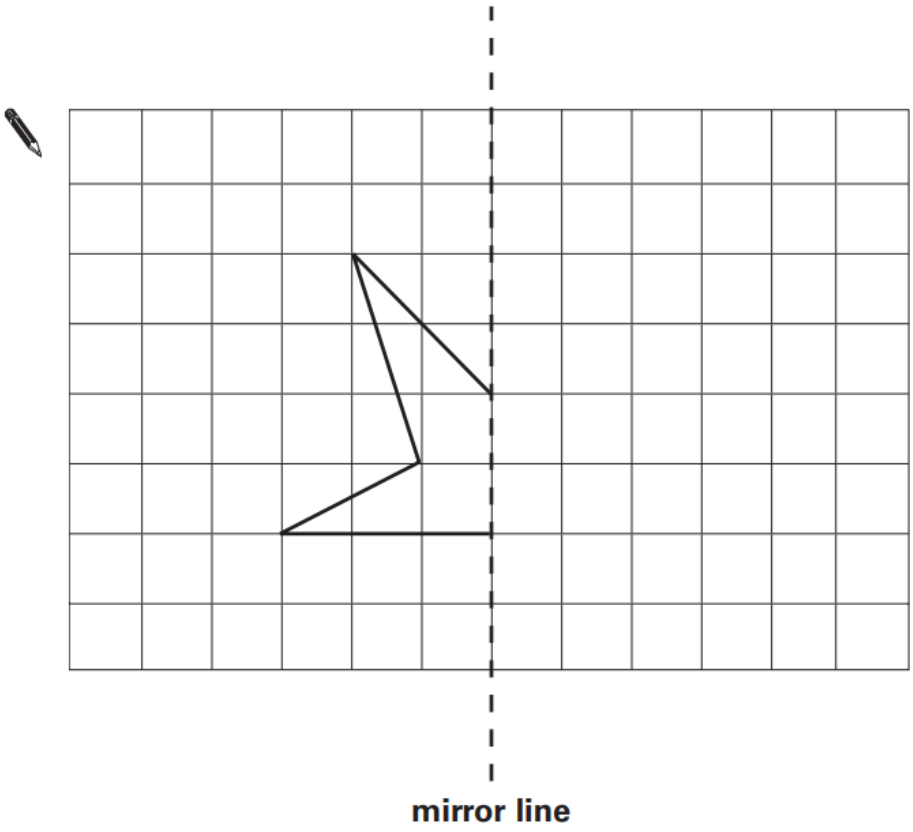
[1 mark]

---

4 [2004]

Complete the diagram below to make a shape that is symmetrical about the mirror line.

Use a ruler.



[1 mark]

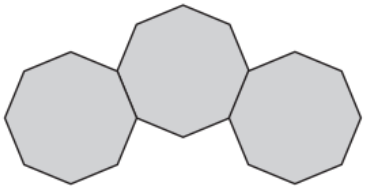
41

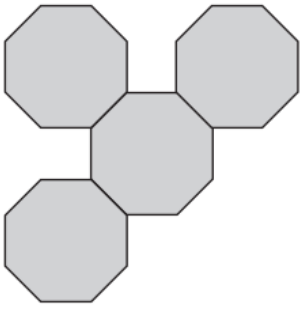
7 These diagrams are made from regular octagons.

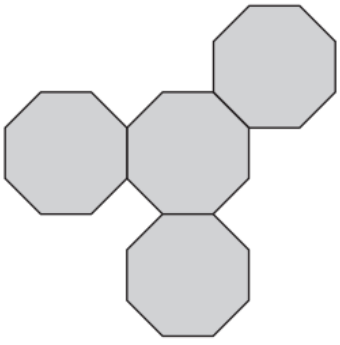
[2011]

Draw the line of symmetry on each diagram.

Use a ruler.







[2 marks]

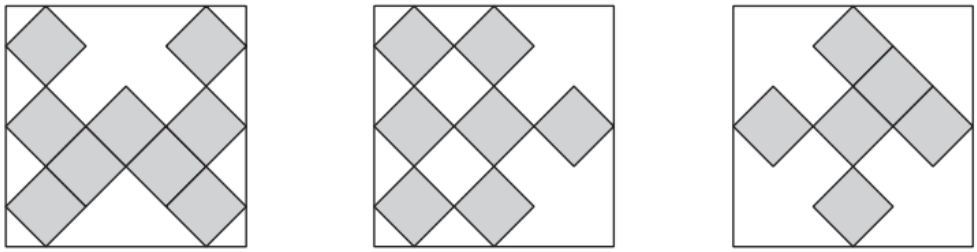
42

10 These three square tiles have symmetrical patterns on them.

[2015]

Draw the line of symmetry on each tile.

Use a ruler.



[2 marks]

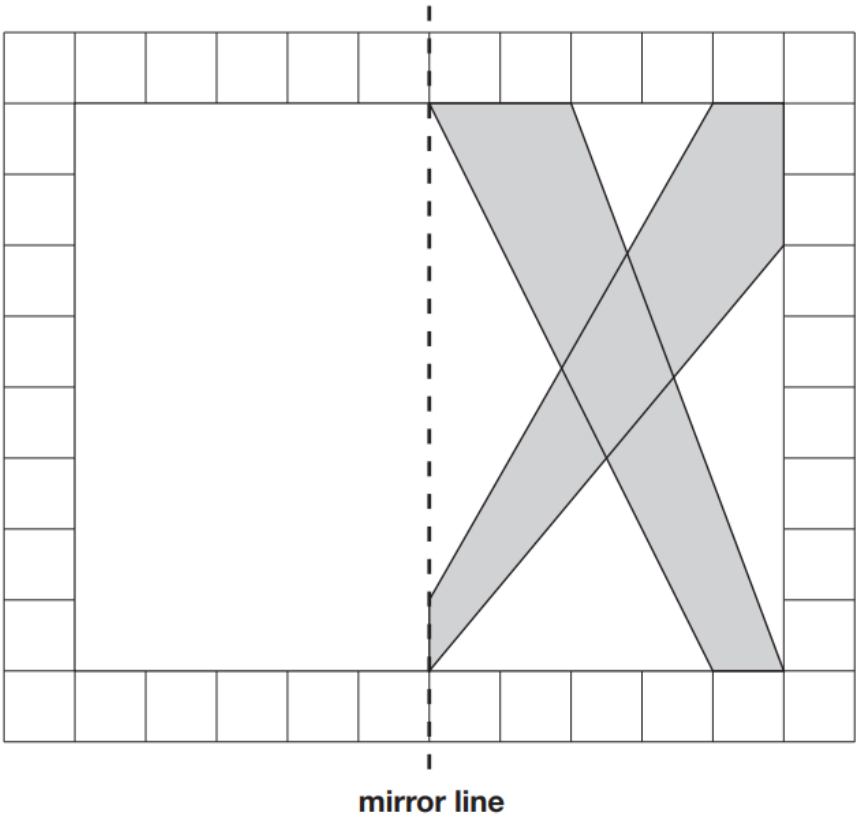
---

11 This diagram shows a shaded shape inside a border of squares.

[2016]

Draw the reflection of the shape in the mirror line.

Use a ruler.

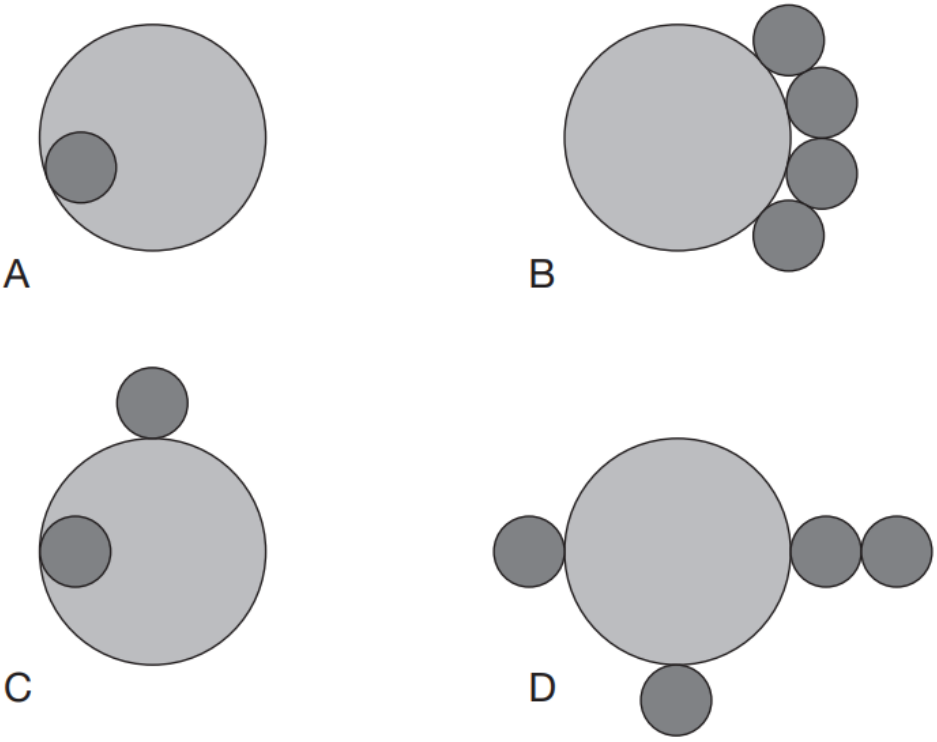


[1 mark]

43

19 Here are four designs made from two sizes of circles.

[2013]



Write the letters of all the designs that have line symmetry.

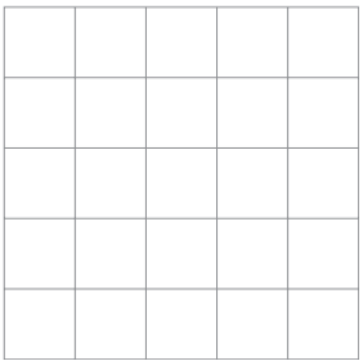
_____

[1 mark]

---

20 Shade 5 squares, on the grid below, to draw a pattern that has more than one line of symmetry.

[Extra]



[1 mark]

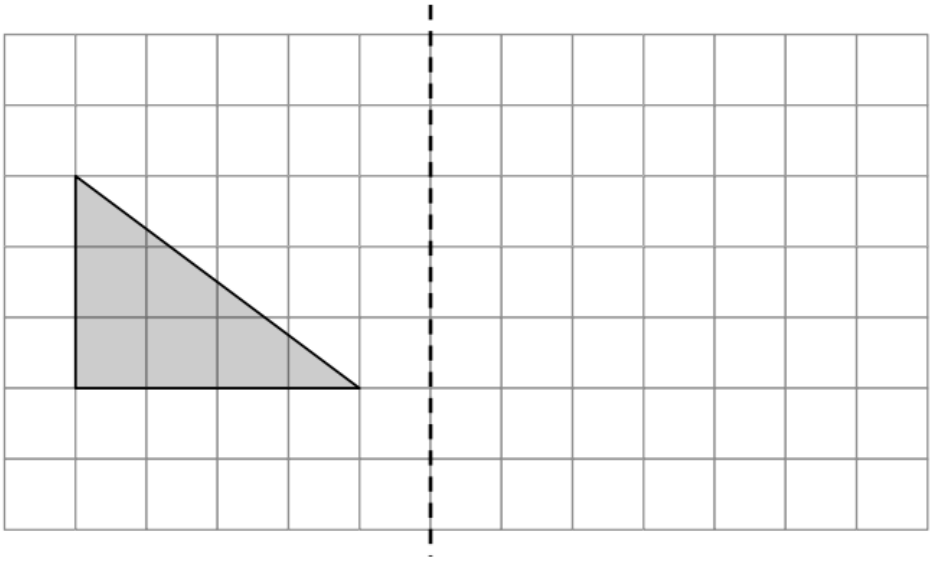
44

Section Five:
Reflect and Translate

1 Draw the reflection of the shaded shape in the mirror line.

[Extra]

Use a ruler.



[1 mark]

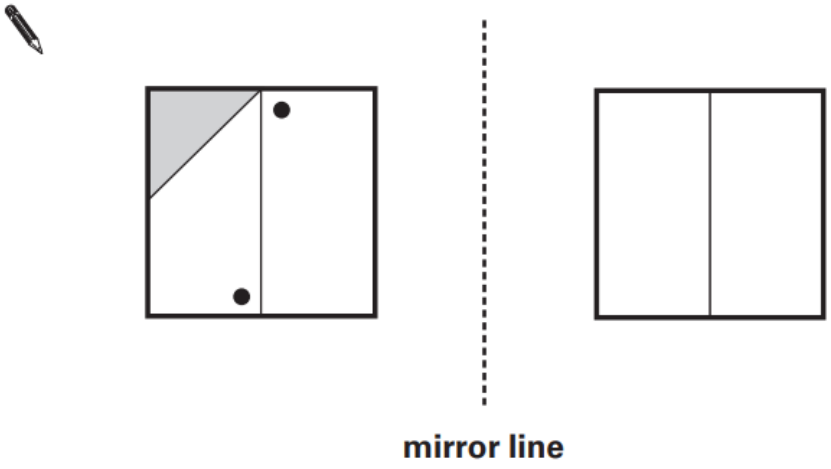
---

2 Here is a square with a design on it.

[2002]

The square is reflected in the mirror line.

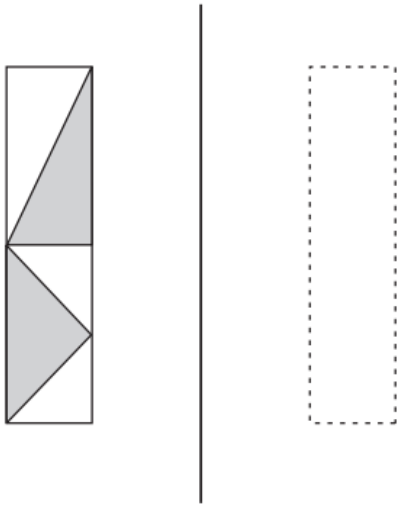
Draw the missing triangle and dots on the reflected square.



[1 mark]

9 Here is a design and a mirror line.

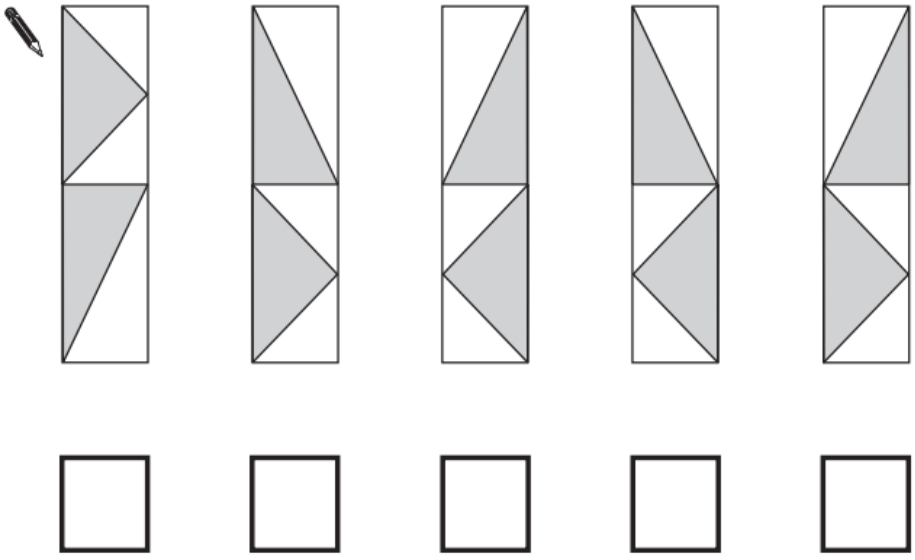
[2003]



mirror line

Which **one** of the designs below is the reflection of the design in the mirror line?

Tick (✓) the correct design.

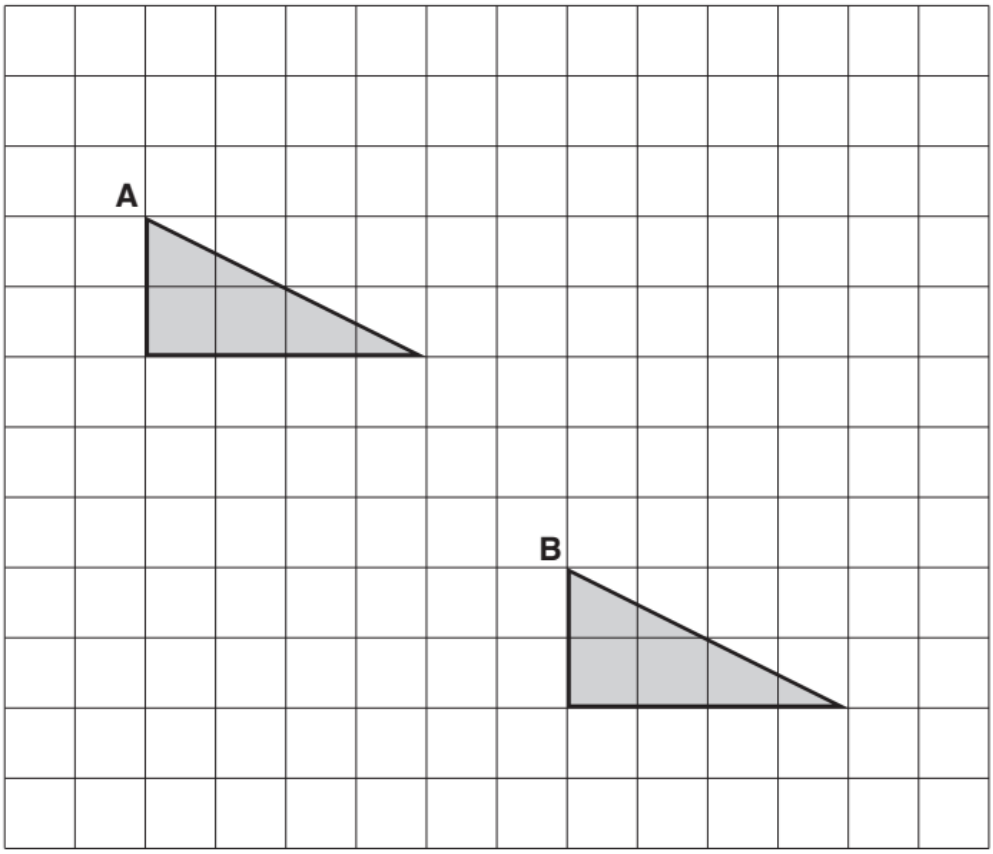


[1 mark]

48

12 A triangle is translated from position **A** to position **B**.

[2016]



Complete the sentence.

The triangle has moved ☐ squares to the right

and ☐ squares down.

[1 mark]

49

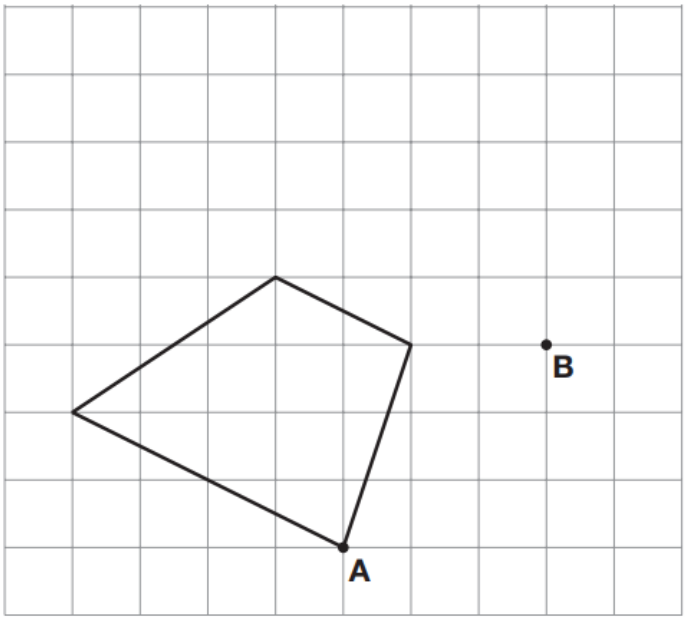
13 [2010]

Here is a quadrilateral on a square grid.

The quadrilateral is translated so that point **A** moves to point **B**.

Draw the quadrilateral in its new position.

Use a ruler.



[1 mark]

---

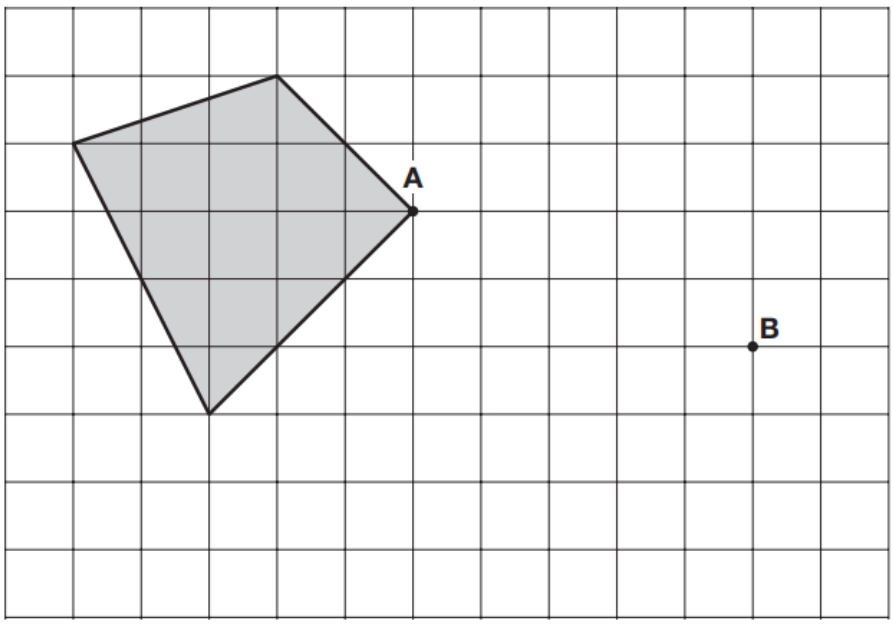
14 [2016S]

Here is a shape on a square grid.

The shape is translated so that point **A** moves to point **B**.

Draw the shape in its new position.

Use a ruler.

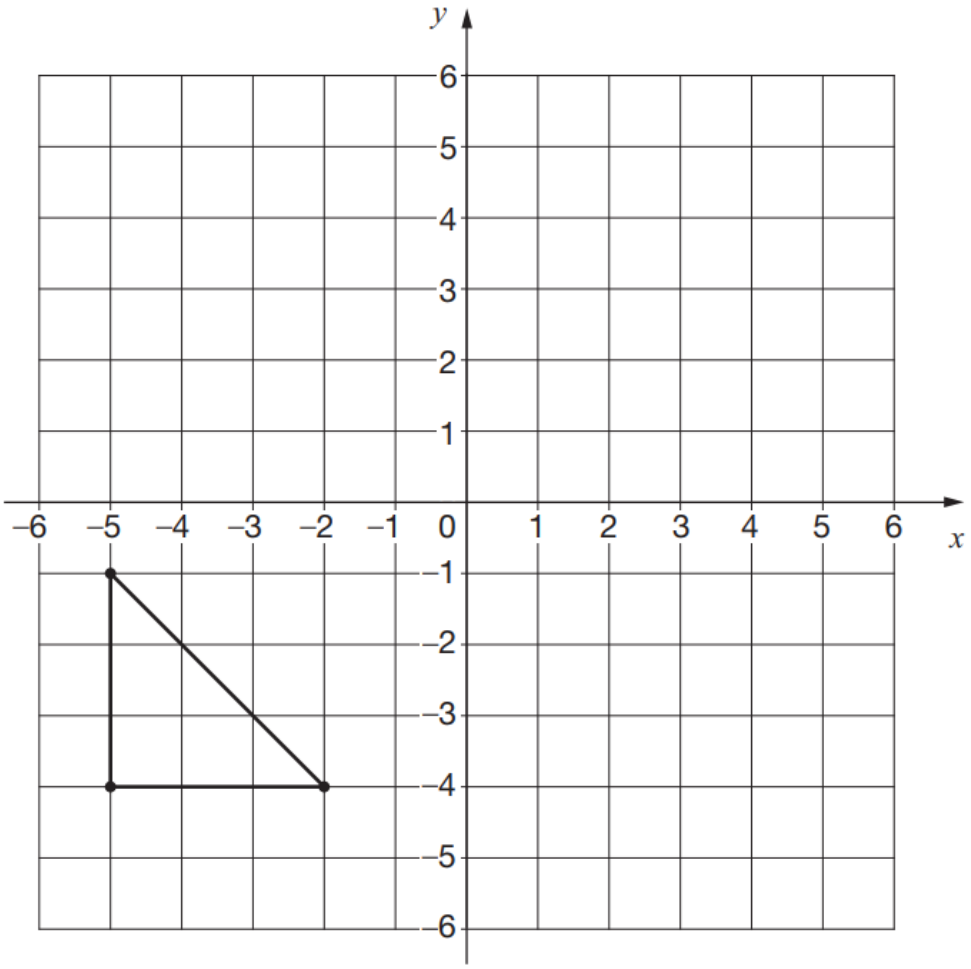


[1 mark]

50

15 Here is a triangle drawn on a coordinate grid.

[2017]



The triangle is translated **7 right** and **5 up**.

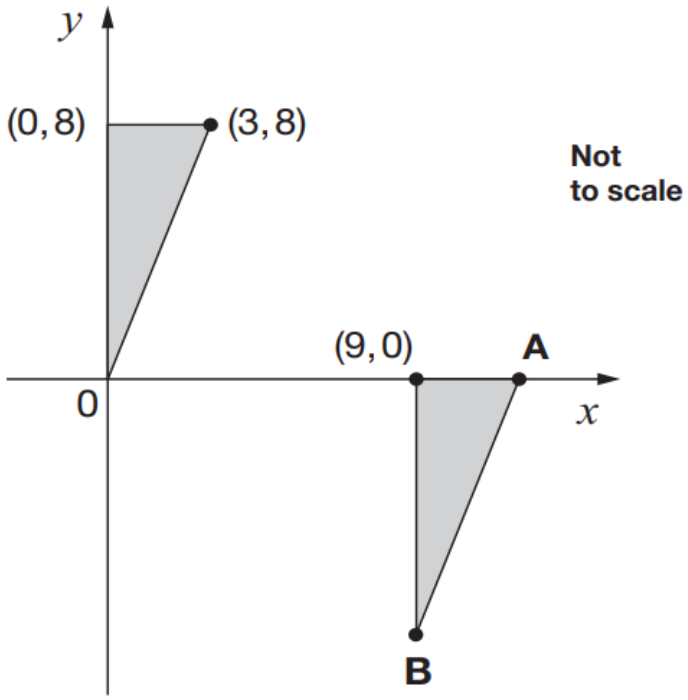
Draw the triangle in its new position.

[1 mark]

51

16 Here are two **identical** shaded triangles on coordinate axes.

[2016S]



Write the coordinates of points A and B.

A = (,)

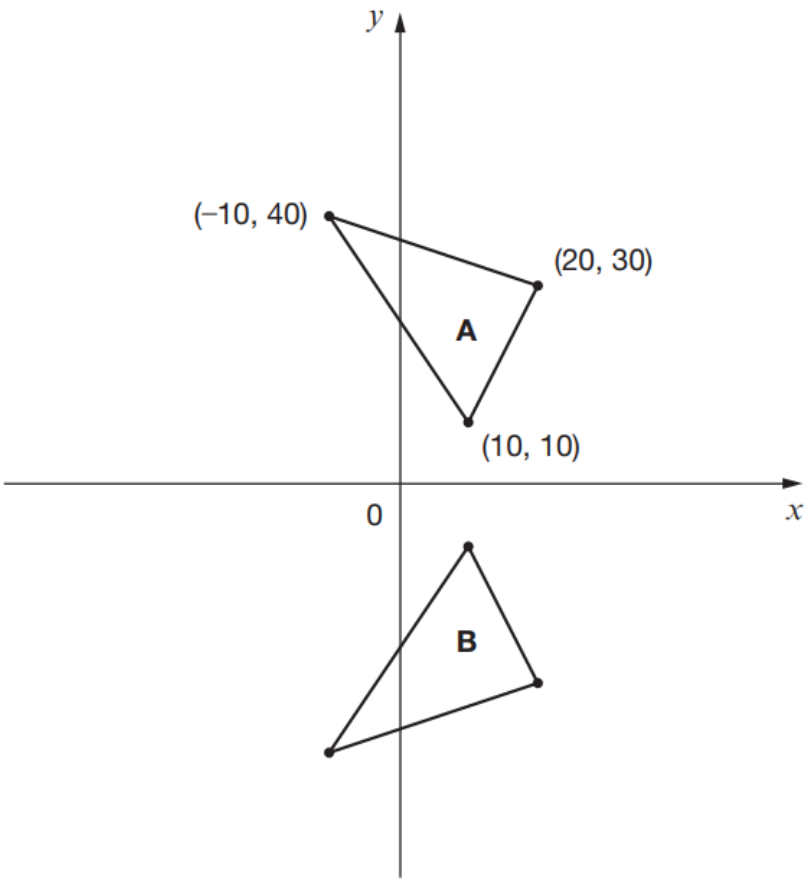
B = (,)

[2 marks]

52

17 Here are two triangles drawn on coordinate axes.

[2016]



Triangle B is a reflection of triangle A in the x-axis.

Two of the new vertices of triangle B are (10, –10) and (20, –30).

What are the coordinates of the **third** vertex of triangle B?

(,)

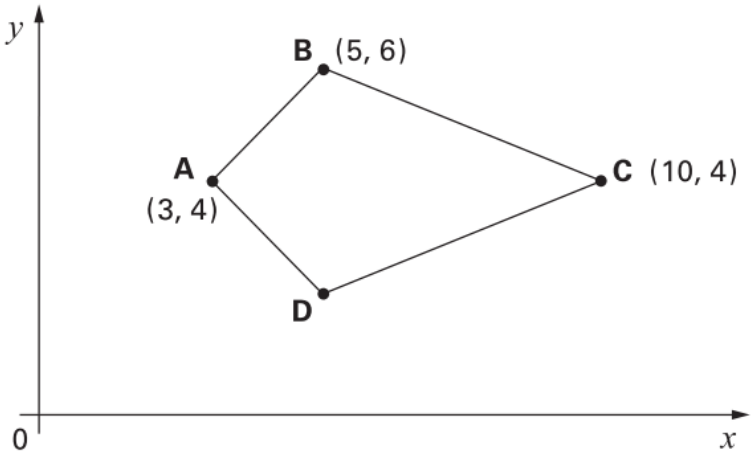
[1 mark]

53

Section Six: Coordinates

2 Here is a kite.

[2004]



Write the coordinates of point **D**.

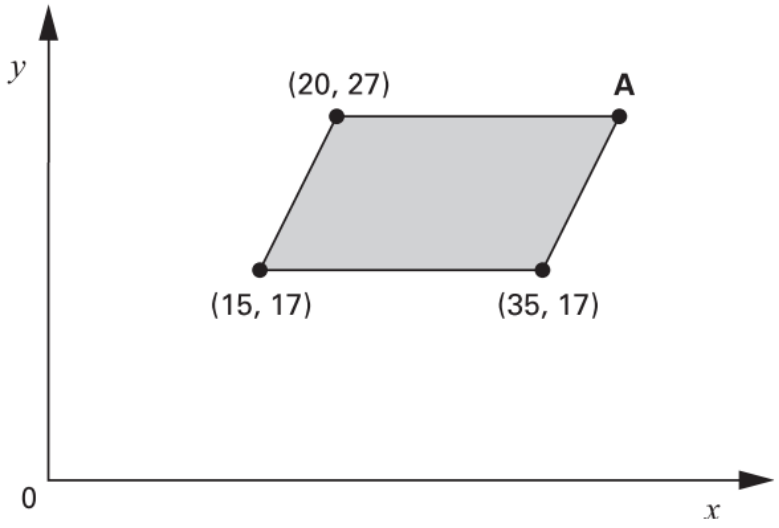
(,)

[1 mark]

---

3 The shaded shape is a parallelogram.

[2002]



Write the coordinates of point **A**.

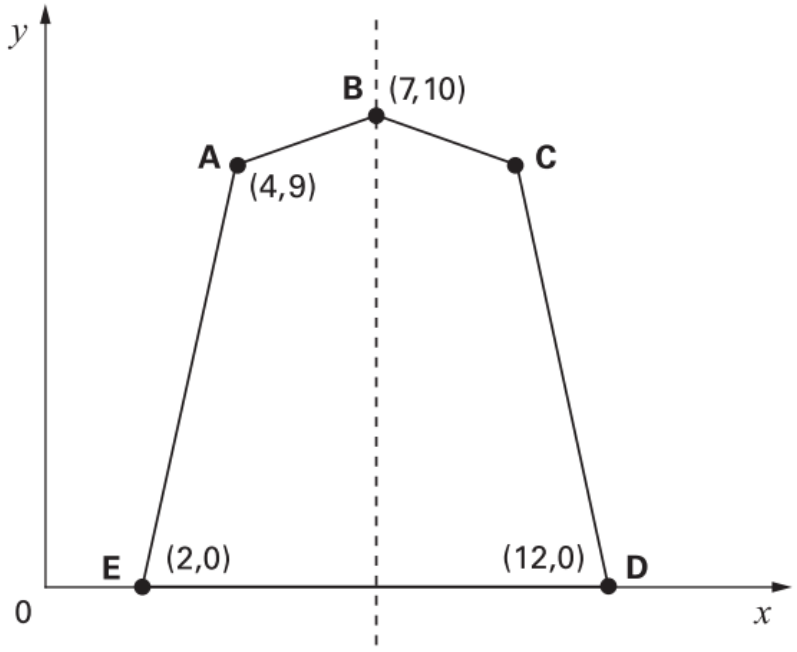
(,)

[1 mark]

4 [2003]

Here is a pentagon drawn on a coordinate grid.

The pentagon is symmetrical.



Write the coordinates of point **C**.

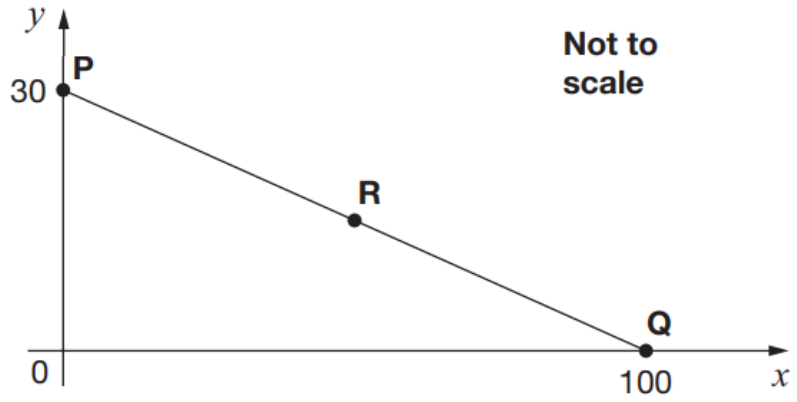
(,)

[1 mark]

---

5 [2015]

In this diagram **R** is an equal distance from **P** and **Q**.



What are the coordinates of point **R**.

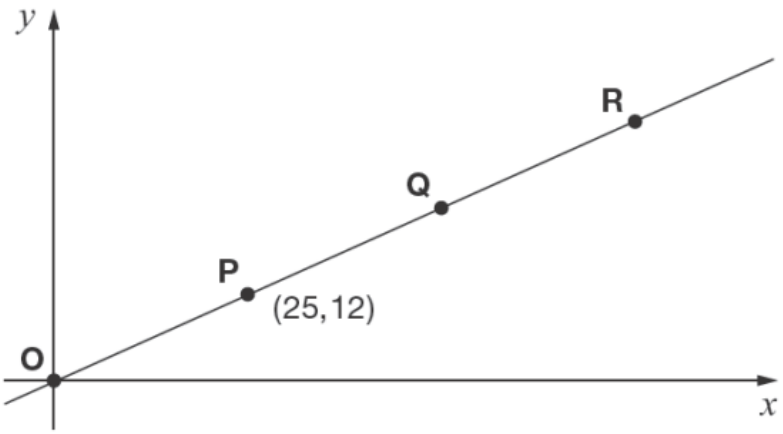
(,)

[1 mark]

57

9 Here is a line on coordinate axes.

[2012]



Points **O**, **P**, **Q** and **R** are equally spaced.

The coordinates of **P** are (25,12).

What are the coordinates of **R**?

R = (,)

[1 mark]

58

13 The vertices of a quadrilateral have these coordinates.

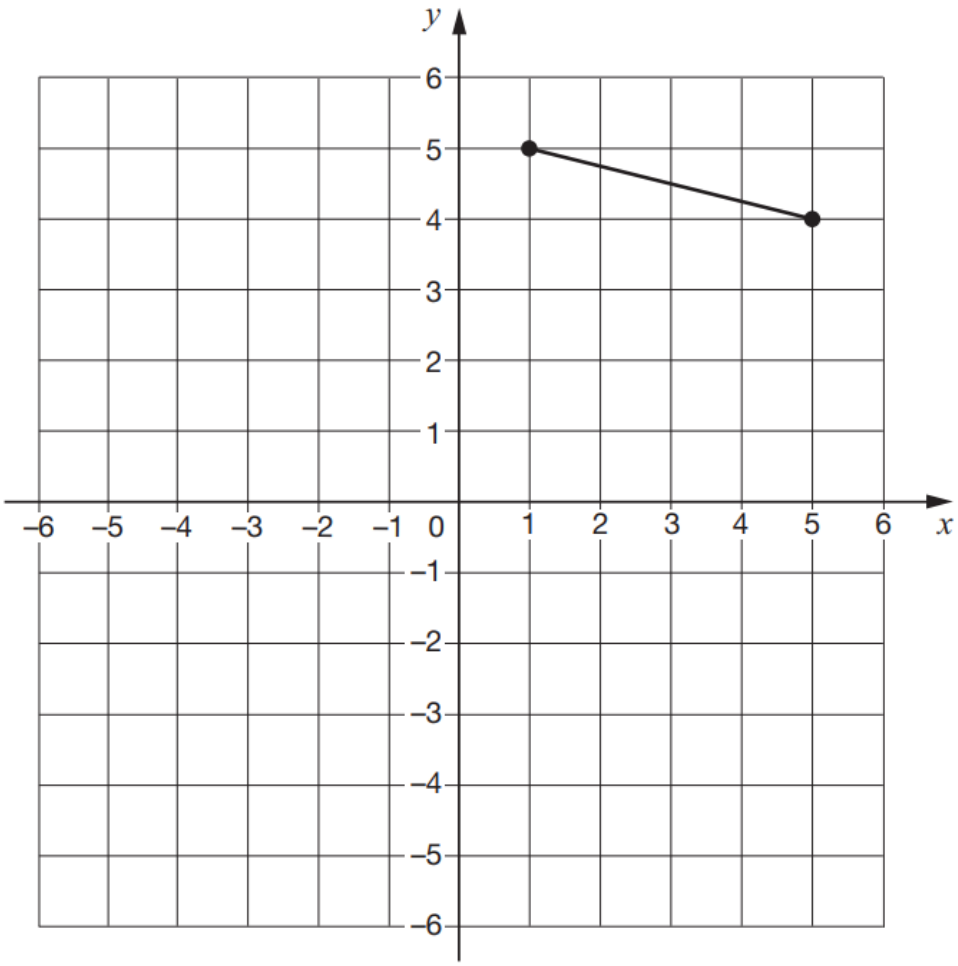
[2017]

(1, 5) (5, 4) (1, –3) (–3, 4)

One side of the quadrilateral has been drawn on the grid.

Complete the quadrilateral.

Use a ruler.



[1 mark]

59

60