

Key Stage 4

Foundation Geometry Revision



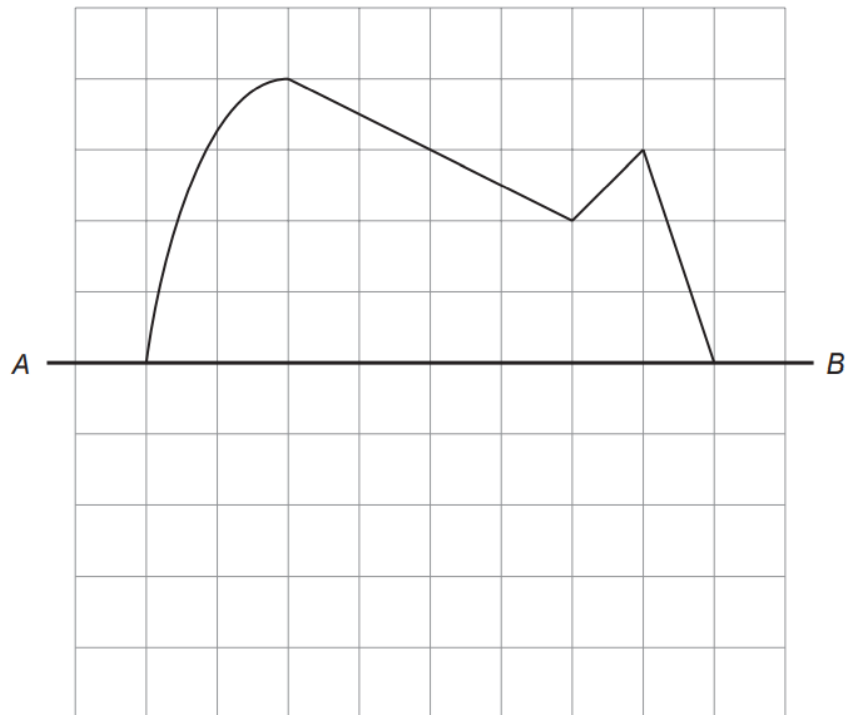
Name:

Teacher:

Maths Non-calculator

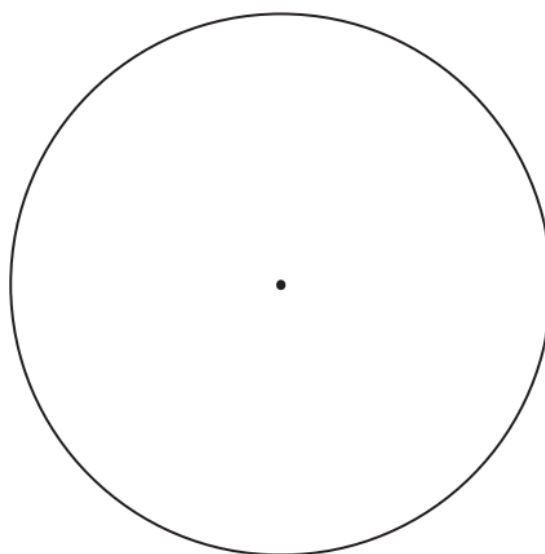
1. (a) Draw a reflection of this shape in the line AB .

[2]



- (b) Measure the length of the radius of this circle using metric units. State the units you are using.

[2]



Radius =

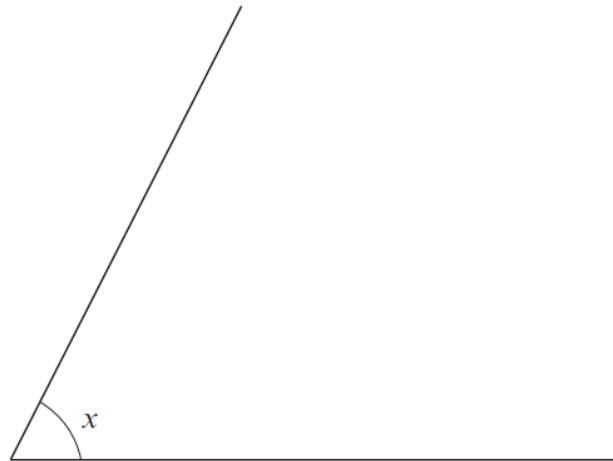
1. (a) On the line below, mark the point B , so that $AB = 7.5\text{ cm}$.

[1]



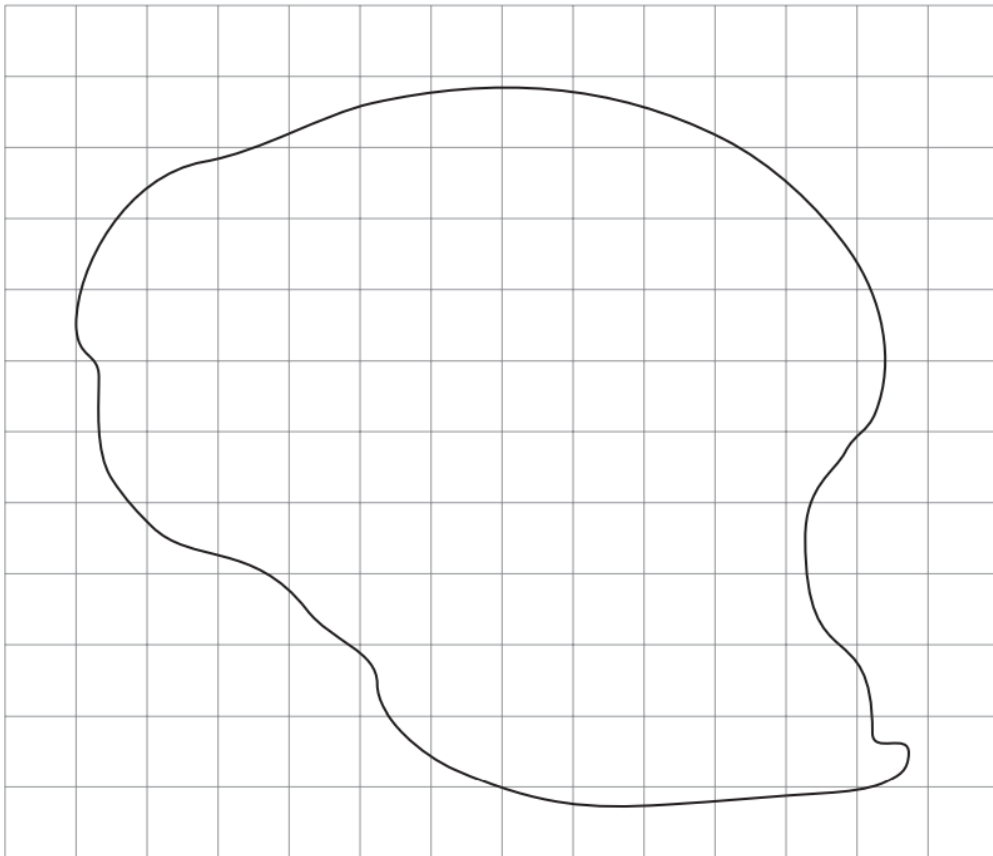
- (b) Measure and write down the size of angle x .

[1]



$x = \dots\dots\dots^\circ$

2.



The shape above has been drawn on a centimetre square grid.
Estimate the area of the shape.

[2]

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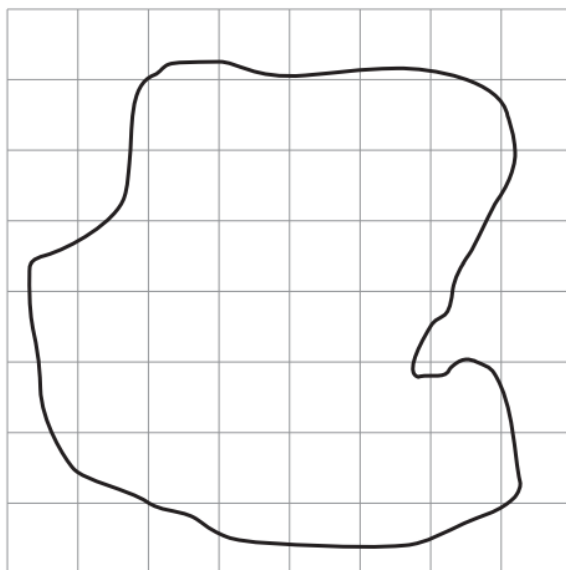
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Area of the shape = cm^2

2. (a) *In this part of the question, you will be assessed on the quality of your linguistic and mathematical accuracy in writing.*



The shape above has been drawn on a square grid.

Each square represents an area of 5 cm^2 .

Estimate the total area of the shape.

You must show all your working.

[3 + 1 W]

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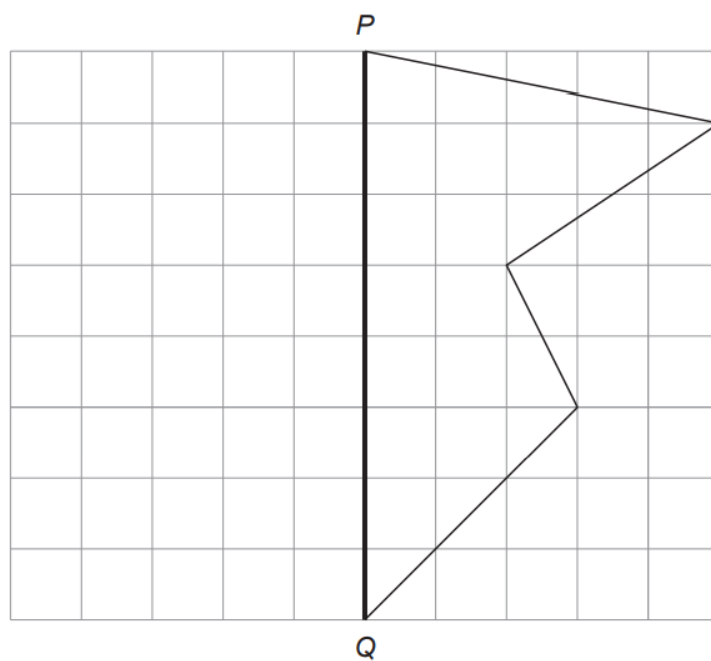
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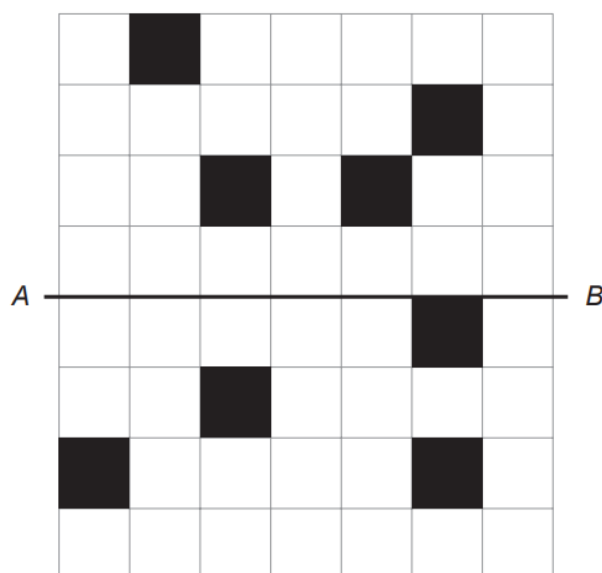
(b) Draw a reflection of this shape in the line PQ .

[1]



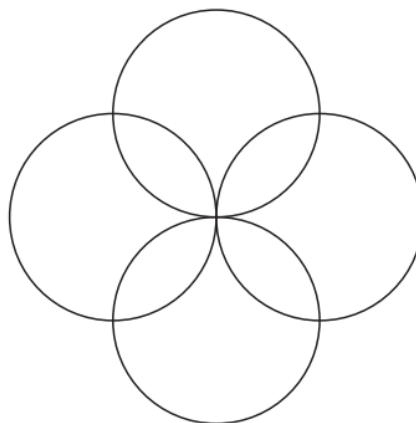
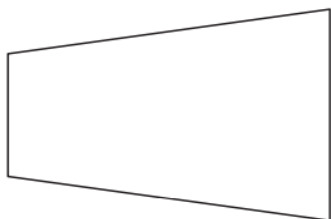
3. Shade the smallest number of squares needed to make the line AB a line of symmetry.

[2]

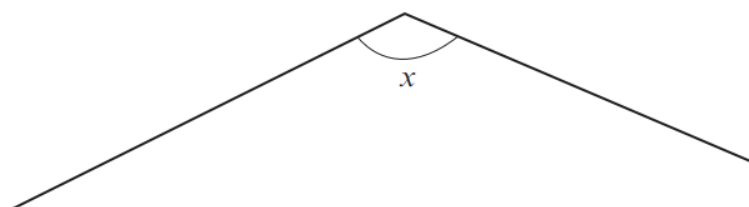


3. Draw all the lines of symmetry on each of the following shapes.

[3]



4. (a)

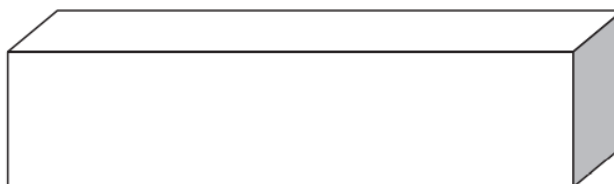


What type of angle is x in the diagram above?
Circle your answer.

[1]

right angle reflex obtuse acute

(b)



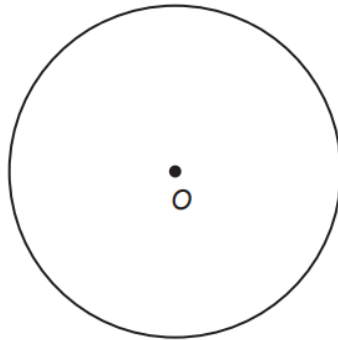
What is the special name of the shape drawn above?
Circle your answer.

[1]

sphere cube cone cuboid cylinder

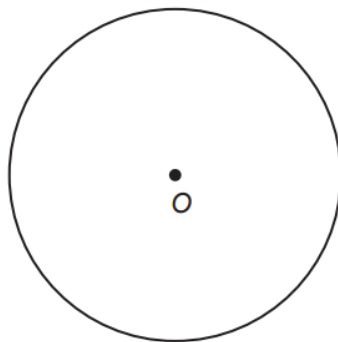
4. (a) Draw a tangent to this circle.
O is the centre of the circle.

[1]



- (b) Draw a radius of this circle.
O is the centre of the circle.

[1]



4. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

A square is made using four rods of equal length joined end to end.

The perimeter of this square is 72 cm.

Three of these rods are now joined end to end to make an equilateral triangle.

What is the perimeter of this equilateral triangle?

You must show all your working.

[3 + 2 OCW]

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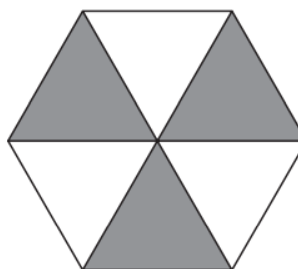
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8. Write down the order of rotational symmetry for each of the following.

[2]



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7. *In this question, you will be assessed on the quality of your organisation and communication.*

Two rectangles are shown in the diagram below.

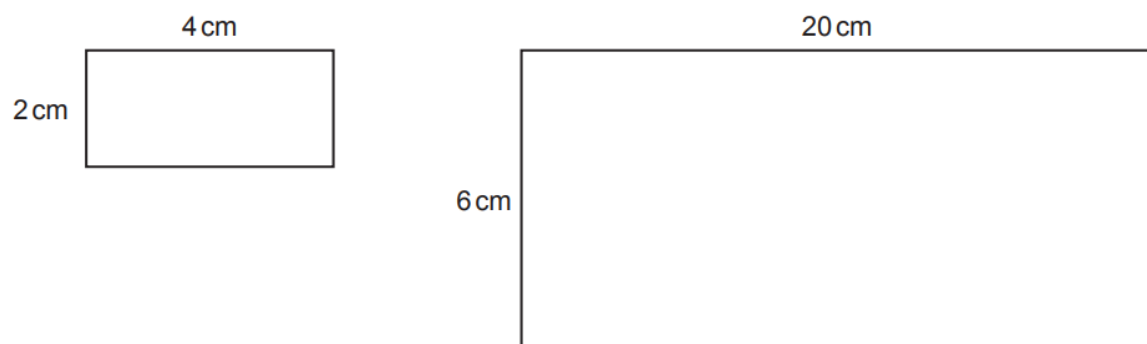


Diagram not drawn to scale

How many small rectangles will fit exactly into the large rectangle?
The small rectangles must not overlap and there must be no space left.
You must show all your working.

[3 + 1 OC]

- A rod is 4 yards long and another rod is $1\frac{1}{2}$ yards long.

[3 + 2 OCW]

1 foot = 12 inches

10. In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.

The diagram shows **part** of a rectangle and some identical circles drawn inside the rectangle. The circles touch each other or the sides of the rectangle, as shown in the diagram.

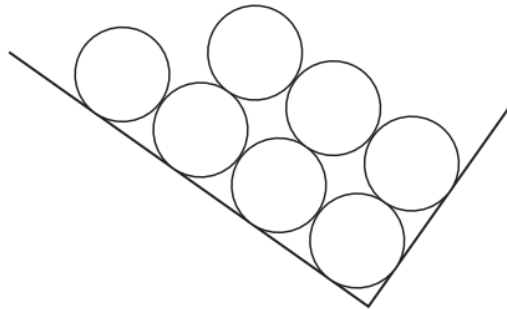


Diagram not drawn to scale

The rectangle measures 30 cm by 1 m.
The diameter of every circle is 5 cm.

What is the largest number of circles that will fit into this rectangle?
The circles must be arranged in the way shown above.
You must show all your working.

[3 + 2 OCW]

10.

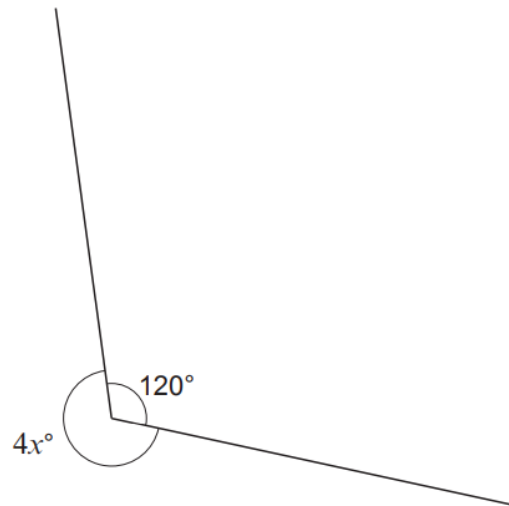


Diagram not drawn to scale

Calculate the value of x .

[3]

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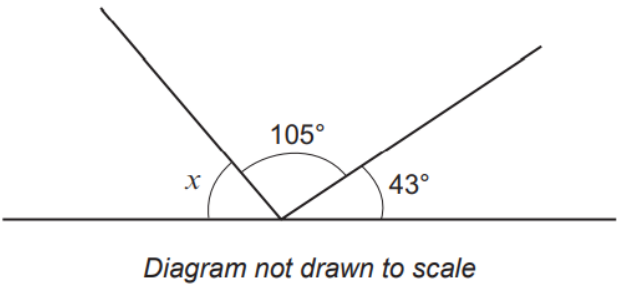
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$x =$

11. Find the size of angle x .

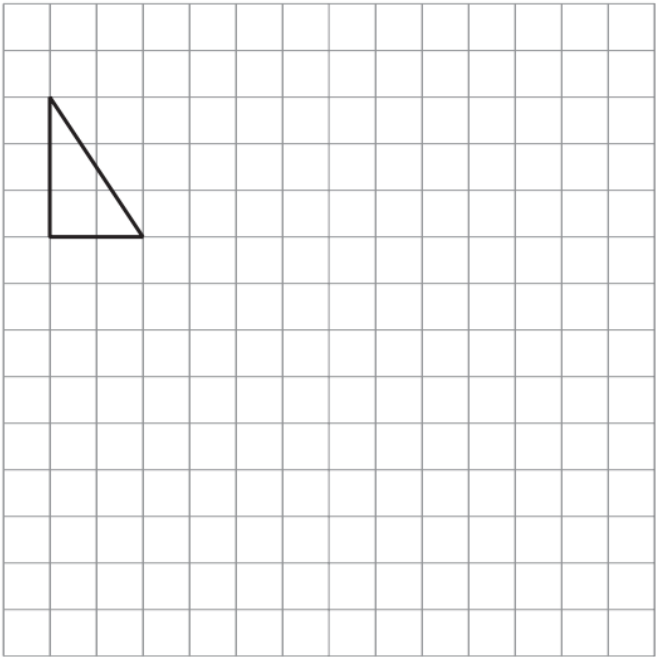
[2]



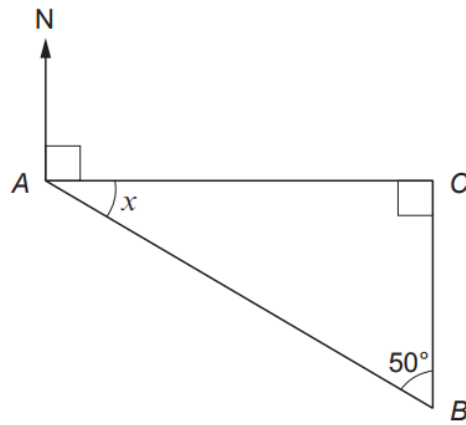
$x = \text{.....}^\circ$

13. Enlarge the triangle below by a scale factor of 3.

[2]



15.



Calculate the size of angle x .
Hence, give the bearing of point B from point A .

[3]

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$x =$ $^{\circ}$ Bearing of point B from point $A =$ $^{\circ}$

15. In the diagram below, $ABCE$ is a square and CDE is a right-angled triangle. The length of DE is 4 cm and the area of triangle CDE is 14 cm^2 .

Calculate the area of the **whole** shape $ABCDE$.
You must show all your working.

[4]

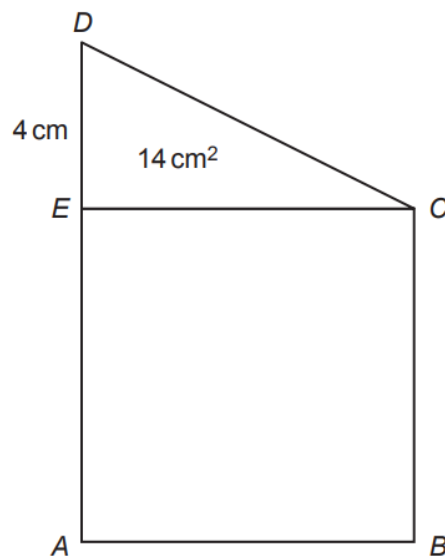


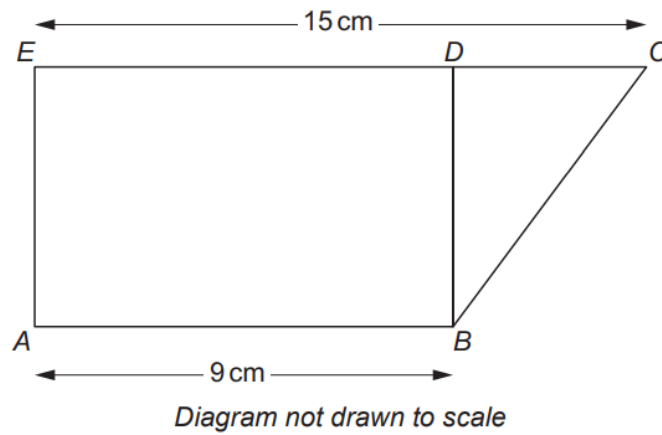
Diagram not drawn to scale

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- The diagram shows a rectangle $ABCD$ with vertices A (bottom-left), B (bottom-right), C (top-right), and D (top-left). Diagonals AC and BD intersect at an angle of 110° . A line segment BE is drawn from vertex B to a point E below the rectangle. A line segment EF is drawn from E to a point F on the extension of diagonal AC . A line segment FG is drawn from F to a point G on the extension of side AB . The angles are labeled as follows: a is the angle between AB and BE ; b is the angle between BE and EF ; c is the angle between EF and FG .

Find the size of each of the angles a , b and c .

[4]

17. A right-angled triangle BCD is joined to a rectangle $ABDE$, as shown below.



The area of the rectangle is 45 cm^2 .

Calculate the area of the right-angled triangle. You must show your working.

[5]

17. $ABCD$ is a quadrilateral.

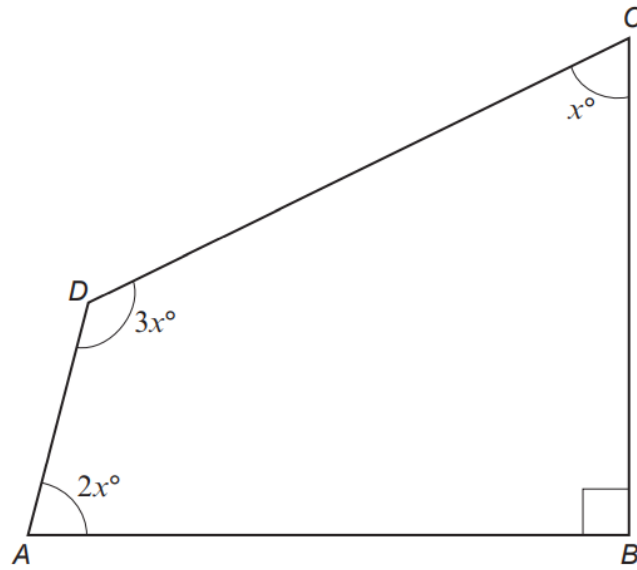


Diagram not drawn to scale

(a) Calculate the value of x .

[4]

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(b) When $ABCD$ is drawn to scale, would the lines AD and BC be parallel or not?
You must justify your answer without using a scale drawing.

[2]

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18. (a) What is the total mass when 534 g is added to 3.5 kg?
Circle the correct answer. [1]

4.034 g 4.034 kg 537.5 g 537.5 kg 884 g

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- (b) What is the total length when 35 cm is added to 7.8 m?
Circle the correct answer. [1]

113 cm 42.8 m 42.8 cm 815 cm 815 m

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- (c) How many mm³ are there in 4 cm³?
Circle the correct answer. [1]

0.4 mm³ 4 mm³ 40 mm³ 400 mm³ 4000 mm³

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19. In the diagram below,
- $ABCD$ is a rectangle, and
 - PQ is parallel to AD .

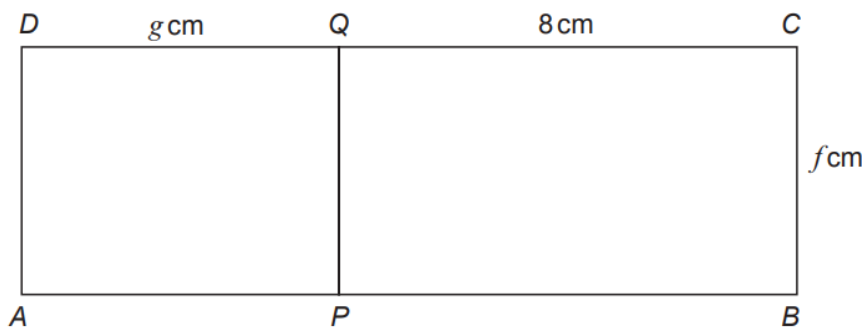


Diagram not drawn to scale

The area of $ABCD$ is 52 cm^2 .
The area of $APQD$ is 20 cm^2 .

Calculate the values of f and g .
You must show all your working.

[5]



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- The diagram shows a composite figure made of a rectangle and a trapezium. The rectangle is ABCF, with a height of 7 cm and an area of 91 cm^2 . The trapezium is EDCF, with a top base ED of 8 cm and a height of 6 cm. The vertices are labeled A, B, C, F for the rectangle and E, D for the trapezium.

Calculate the area of the trapezium $CDEF$.
You must show all your working.

[4]

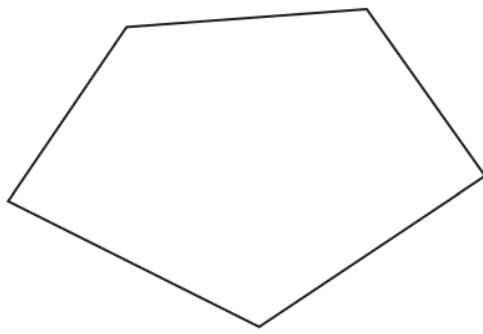
Maths Calculator

2. Circle either TRUE or FALSE for each of the following statements. [2]

STATEMENT			
This shape is a pentagon.		TRUE	FALSE
The straight line shown in this circle is a diameter.		TRUE	FALSE
All quadrilaterals can be split into two triangles.		TRUE	FALSE
All isosceles triangles have 3 sides of equal length.		TRUE	FALSE

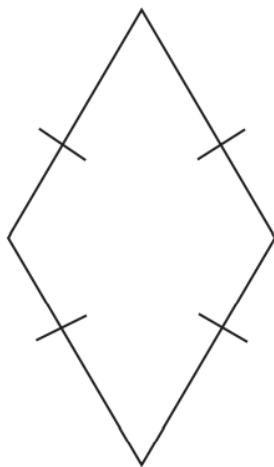
2. Write down the special name of each of the following.

(a)



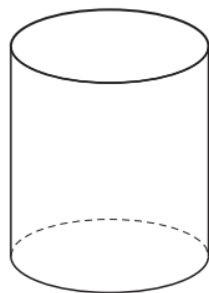
..... [1]

(b)



..... [1]

(c)



..... [1]

4. In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.

An equilateral triangle and a square are shown below.

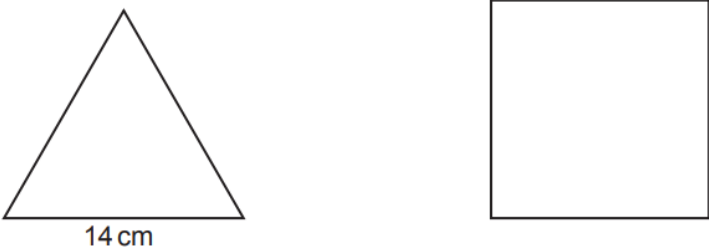


Diagram not drawn to scale

The perimeter of the equilateral triangle is **equal to** the perimeter of the square.

Calculate the length of a side of the square.
You must show all your working.

[3 + 2 OCW]

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6. Circle either TRUE or FALSE for each statement given below. [2]

STATEMENT		
The length of the diameter of a circle is equal to half the length of its radius.	TRUE	FALSE
A straight line connecting two points on the perimeter of a circle is a chord.	TRUE	FALSE
The circumference is the special name for the space inside a circle.	TRUE	FALSE

- (b) One of the angles below is a reflex angle.
Circle the correct answer. [1]

45° 90° 135° 180° 225°

- (c) The diagram below shows two angles on a straight line.
The large angle is 5 times the size of the small angle.
Find the size of each angle. [2]



Diagram not drawn to scale

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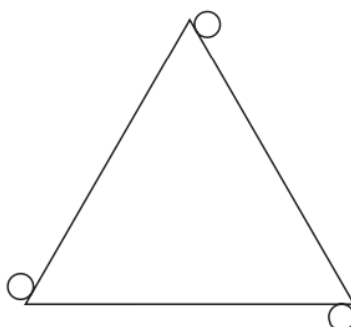
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Small angle =° Large angle =°

5. (a) What is the order of rotational symmetry of the shape below? [1]



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(b) Name a 4-sided shape with rotational symmetry of order 4. [1]

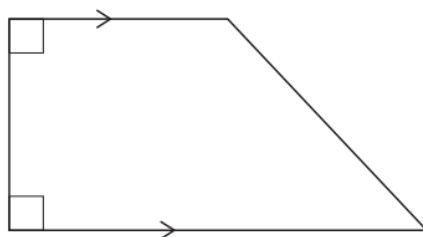
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7. Circle the correct answer for each question below.

(a) What is the special name of the shape below?

[1]



pentagon

rhombus

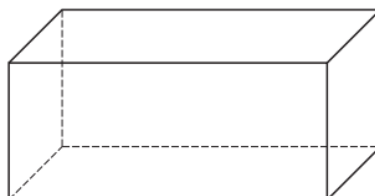
trapezium

rectangle

kite

(b) What is the special name of the 3D shape below?

[1]



cube

cuboid

cylinder

cone

sphere

(c) What type of angle is an angle of 181° ?

[1]

an acute
angle

an obtuse
angle

a straight
line

a right
angle

a reflex
angle

(d) Which shape has rotational symmetry of order 2?

[1]

parallelogram

square

equilateral
triangle

isosceles
triangle

scalene
triangle

9. Circle the correct answer for each of the following statements.

- (a) One angle in a right-angled triangle is 60° .
One of the other angles must be

180°

30°

120°

60°

360°

[1]

- (b) Huw is facing North.
He turns **clockwise** until he is facing West.
He has turned through an angle of

270°

3°

90°

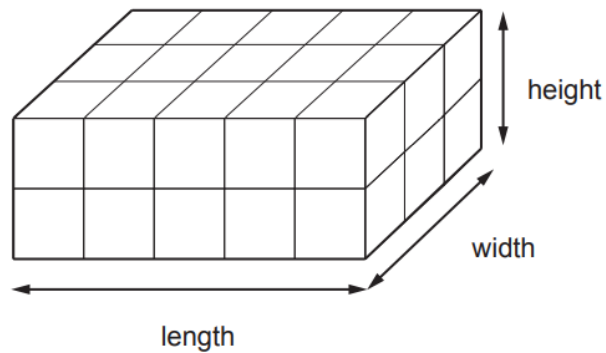
0.75°

9°

[1]

9. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Cuboid A is made up of a number of cubes as shown below. Each edge of each cube is 1 cm long.



A different cuboid, Cuboid B, has the same length and width as Cuboid A. The height of Cuboid B is three times the height of Cuboid A.

What is the volume of Cuboid B?
You must show all your working.

[3 + 2 OCW]

- 10.** *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

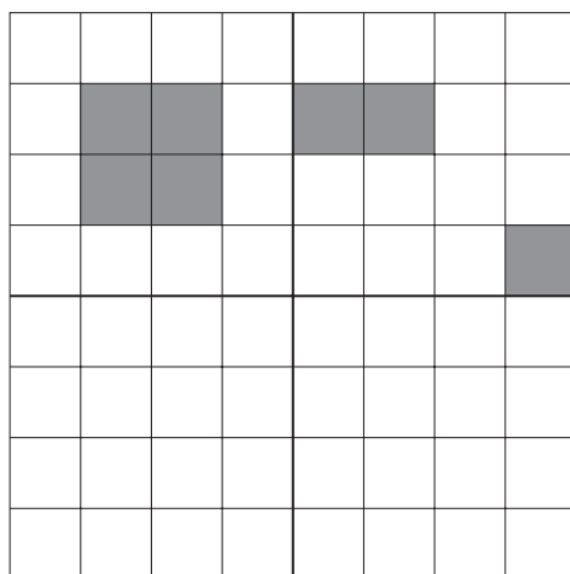


Diagram not drawn to scale

The perimeter of a square is 56 cm.
Calculate the area of the square.
You must show all your working.

[3 + 2 OCW]

10. Shade the least number of squares in the lower two quadrants so that the grid has rotational symmetry of order 2. [3]



11.

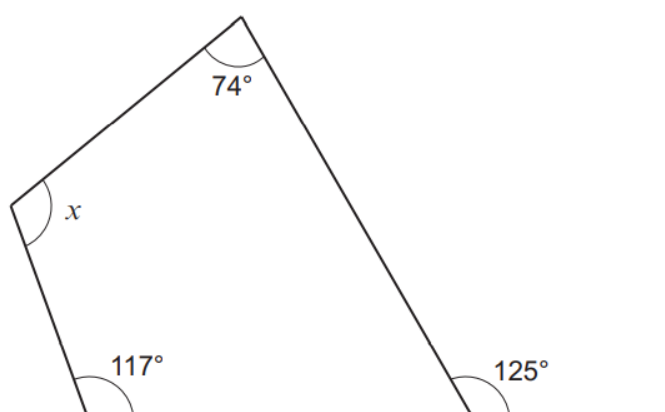


Diagram not drawn to scale

Find the size of the angle x .

[3]

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12.

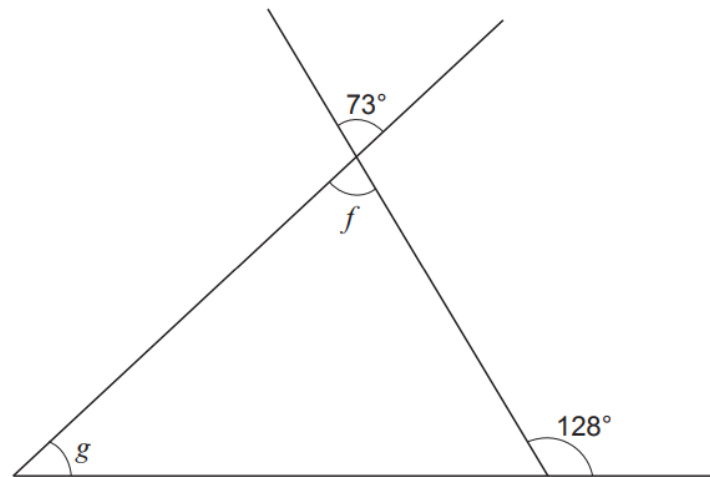


Diagram not drawn to scale

Calculate the size of each of the angles f and g .

[3]

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$f = \dots\dots\dots^\circ$ $g = \dots\dots\dots^\circ$

13. Circle either TRUE or FALSE for each of the following statements.

[3]

A triangle with one angle equal to 70° could be an equilateral triangle.	TRUE	FALSE
A triangle with one angle equal to 70° could be an isosceles triangle.	TRUE	FALSE
A triangle with one angle equal to 70° could be a right-angled triangle.	TRUE	FALSE
An isosceles triangle could have one of its angles equal to 105° .	TRUE	FALSE
A right-angled triangle could have one of its angles equal to 105° .	TRUE	FALSE

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13. (a) Circle the longest time period from the list given below. [1]

180 minutes 4·5 hours 4 hours 45 minutes $4\frac{1}{4}$ hours $\frac{1}{6}$ th of a day

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(b) Circle the longest distance from the list given below. [1]

30 000 mm 250 m 2 km 70 m 4 000 cm 2·4 km

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(c) Circle either TRUE or FALSE for each statement given below. [2]

STATEMENT		
7 kilometres is less than 5 miles	TRUE	FALSE
1 kilogram is less than 2 pounds (lb)	TRUE	FALSE
1 litre is less than 1 pint	TRUE	FALSE
8 litres is less than 900 cm ³	TRUE	FALSE

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14. Catrin makes the following statement.

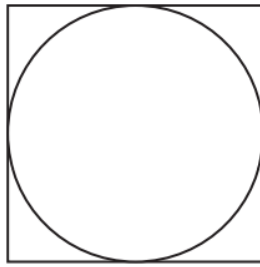
If you double the length of each side of a rectangle, you will double its perimeter and also double its area.

Is Catrin correct?

Show clearly, using an example, how you came to your decision.

[5]

- A circle fits exactly inside the square, as shown in the diagram.



Calculate the circumference of the circle.
Give your answer correct to 1 decimal place.
You must show your working.

[4]

16. (a) The diagram shows two congruent triangles. The coordinates of each vertex are shown.

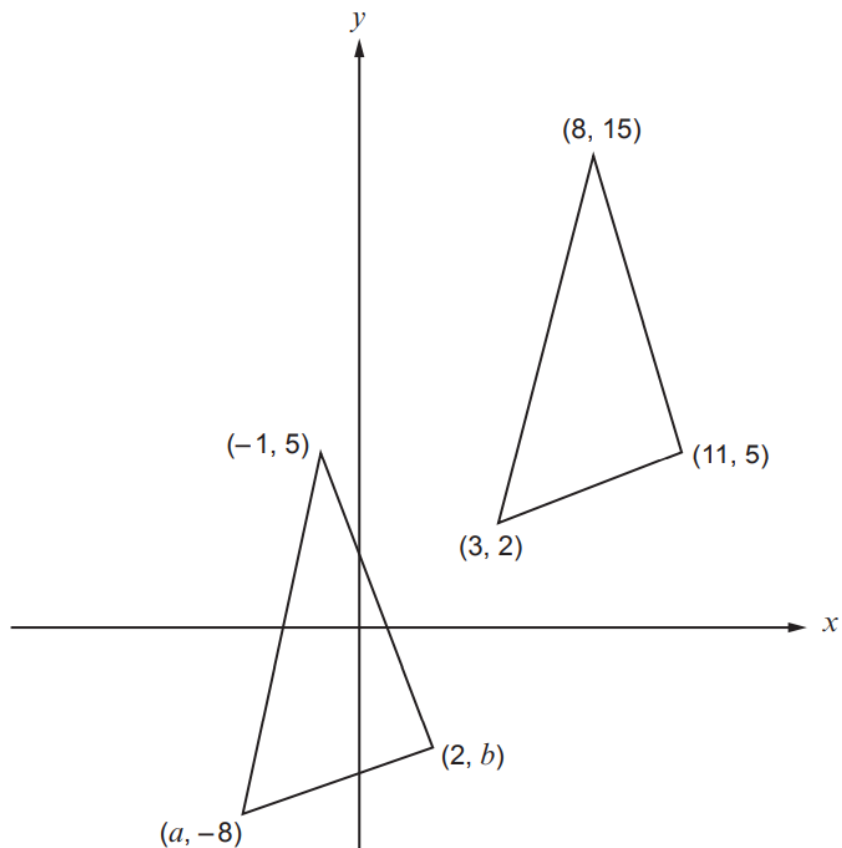


Diagram not drawn to scale

Find the value of a and the value of b .

[2]

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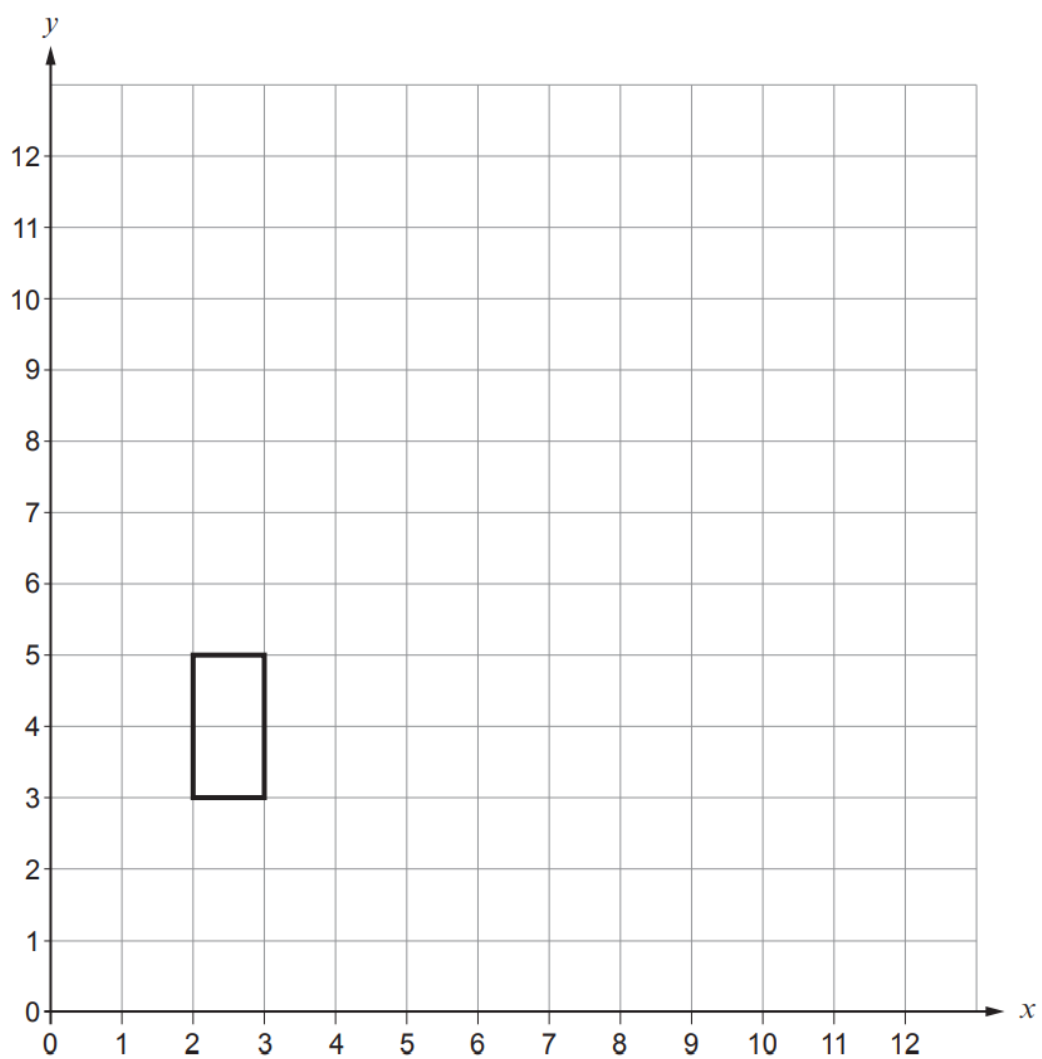
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$a =$

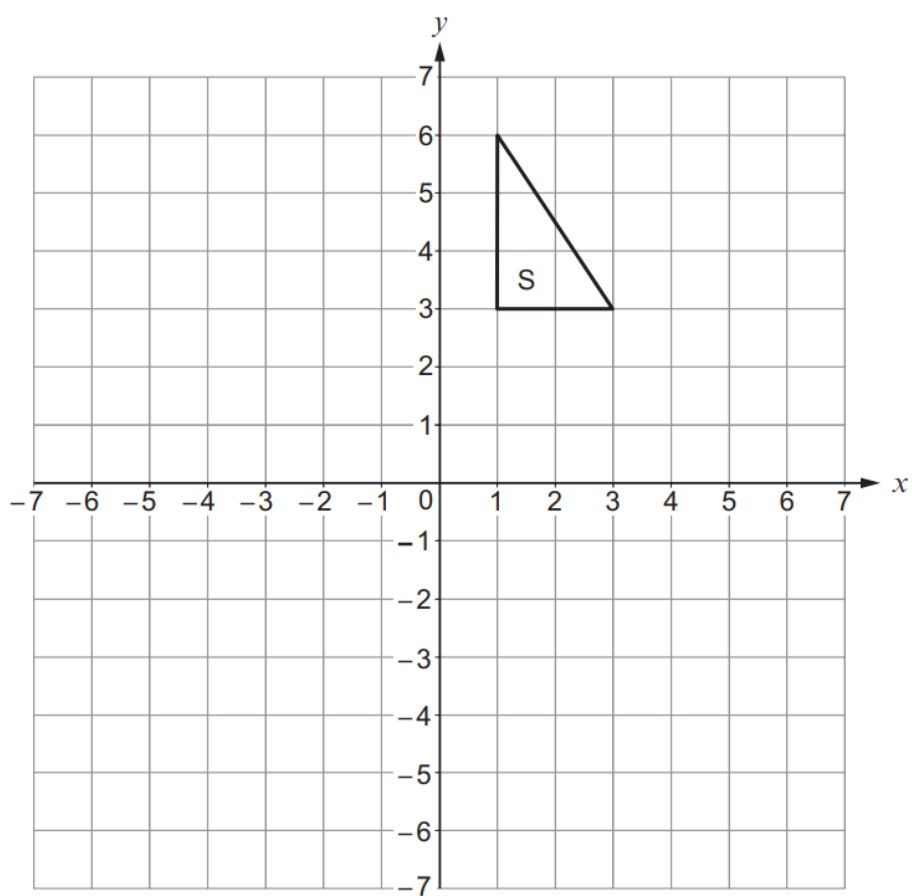
$b =$

- (b) Draw an enlargement of the rectangle below, using a scale factor of 3 and centre $(1, 2)$.
[3]

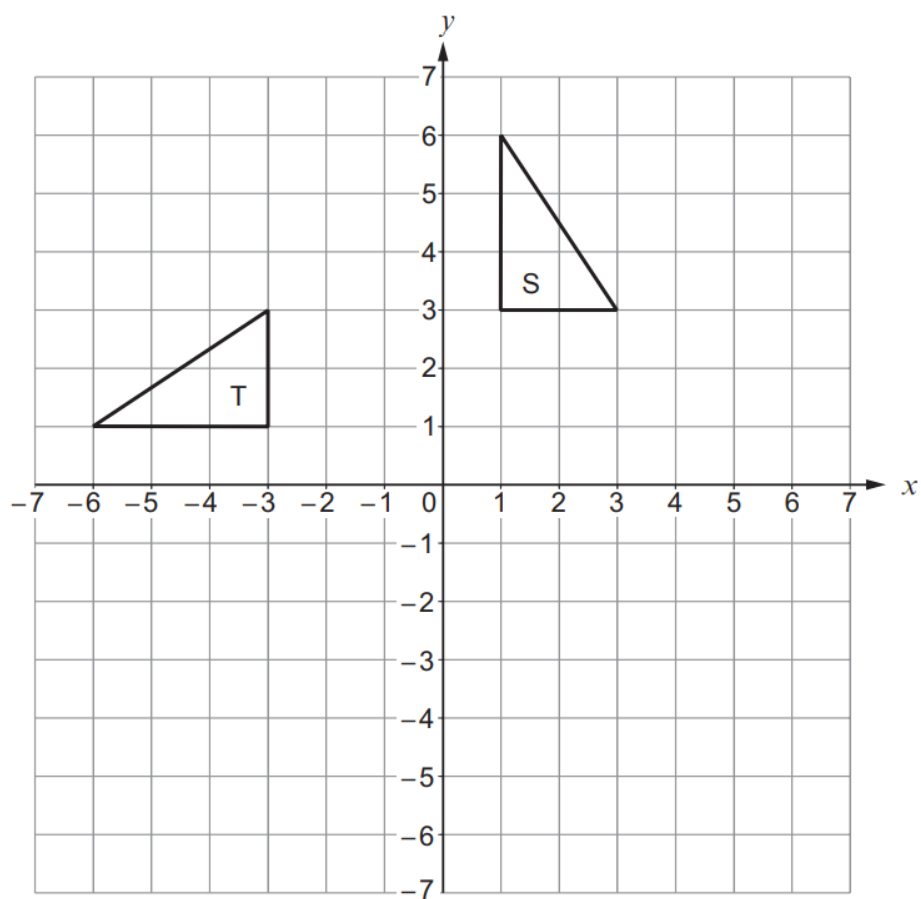


17. (a) Reflect the triangle S in the line $y = 2$.

[2]



- (b) Describe fully a single transformation that transforms triangle S onto triangle T. [3]



19. $ABCDE$ is a regular pentagon with centre O .

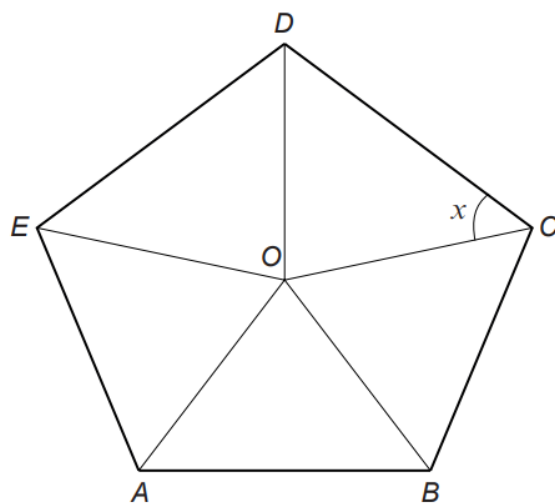


Diagram not drawn to scale

Calculate the size of angle x .
You must show all your working.

[4]

18.

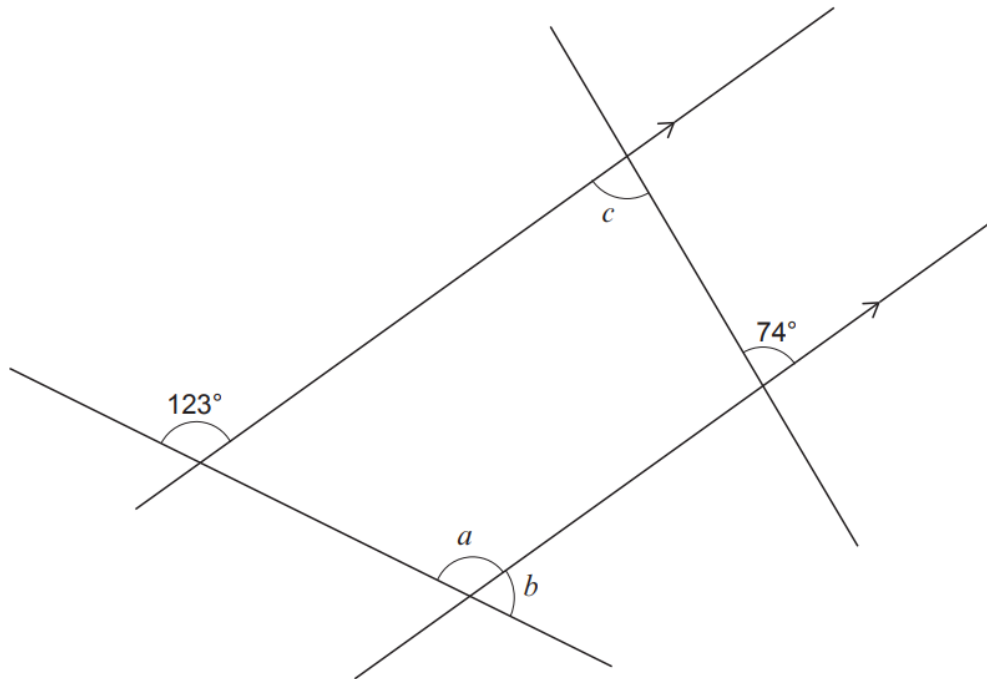


Diagram not drawn to scale

Find the size of each of the angles a , b and c .

[3]

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$a =$ $^{\circ}$ $b =$ $^{\circ}$ $c =$ $^{\circ}$

20. $ABCF$ is a rectangle.
 $CDEF$ is a trapezium.
 BD is a straight line.

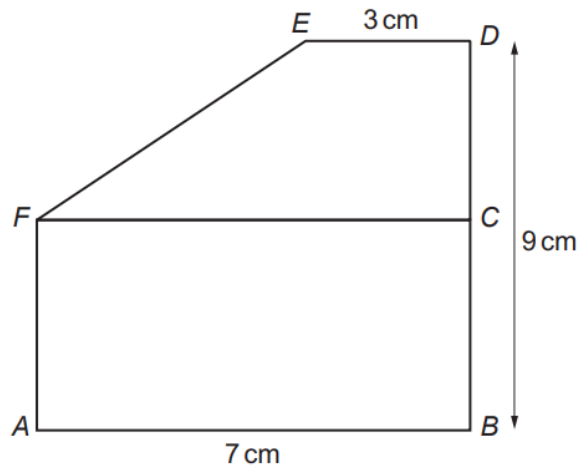


Diagram not drawn to scale

$AB = 7$ cm, $BD = 9$ cm and $DE = 3$ cm.

The perimeter of rectangle $ABCF$ is 24 cm.

Calculate the **area** of the trapezium $CDEF$.

You must show all your working.

[4]