

FREE SAMPLE

GCSE Maths: Geometry and Measures

Grade 4 starter questions

Questions	20
Total marks	76
Sub-topics covered	16
Papers drawn from	17
Years	2017 to 2024

Angles, area, volume, drawing and transformations.

Every question is taken from the opening section of a real Edexcel Higher paper - the part where grade 4 marks are won - and is worth five marks or fewer.

The mark schemes are in a separate booklet, so you can work through these without the answers in front of you.

Question 1

November 2019 · Paper 1 · Q4

2 marks

- 4 Use a ruler and compasses to construct the line from the point P perpendicular to the line CD .
You must show **all** construction lines.

$\times P$

C _____ D

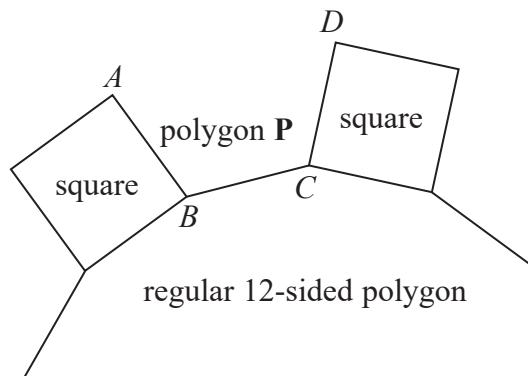
(Total for Question 4 is 2 marks)

Question 2

June 2017 · Paper 3 · Q5

4 marks

- 5 In the diagram, AB , BC and CD are three sides of a regular polygon **P**.



Show that polygon **P** is a hexagon.
You must show your working.

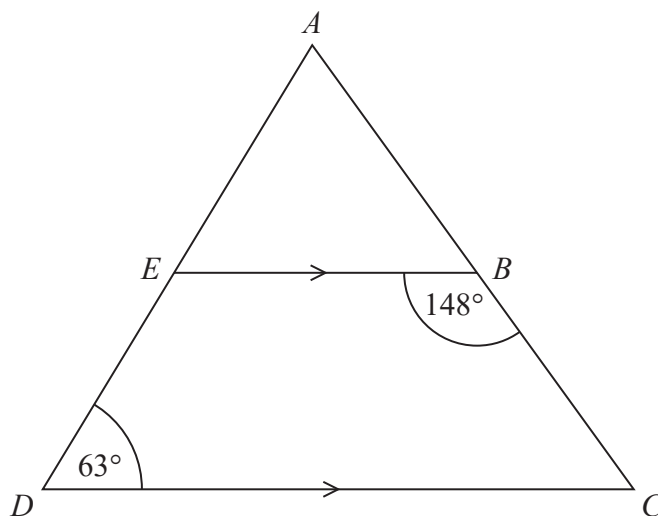
(Total for Question 5 is 4 marks)

Question 3

November 2020 · Paper 1 · Q6

5 marks

6 ADC is a triangle.



AED and ABC are straight lines.
 EB is parallel to DC .

Angle $EBC = 148^\circ$
Angle $ADC = 63^\circ$

Work out the size of angle EAB .
You must give a reason for each stage of your working.

(Total for Question 6 is 5 marks)

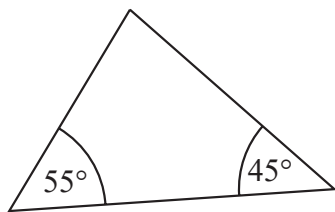
G5 Congruence Criteria

Question 4

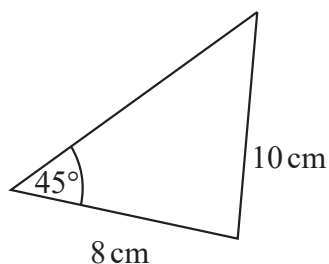
November 2020 · Paper 1 · Q4

1 mark

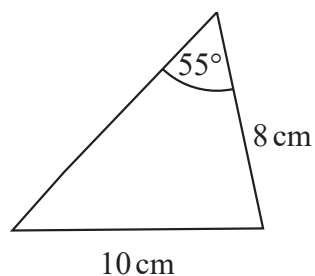
4 The diagram shows four triangles.



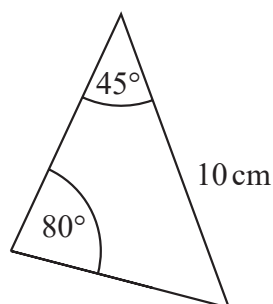
Triangle A



Triangle B



Triangle C



Triangle D

Two of these triangles are congruent.

Write down the letters of these two triangles.

..... and.....

(Total for Question 4 is 1 mark)

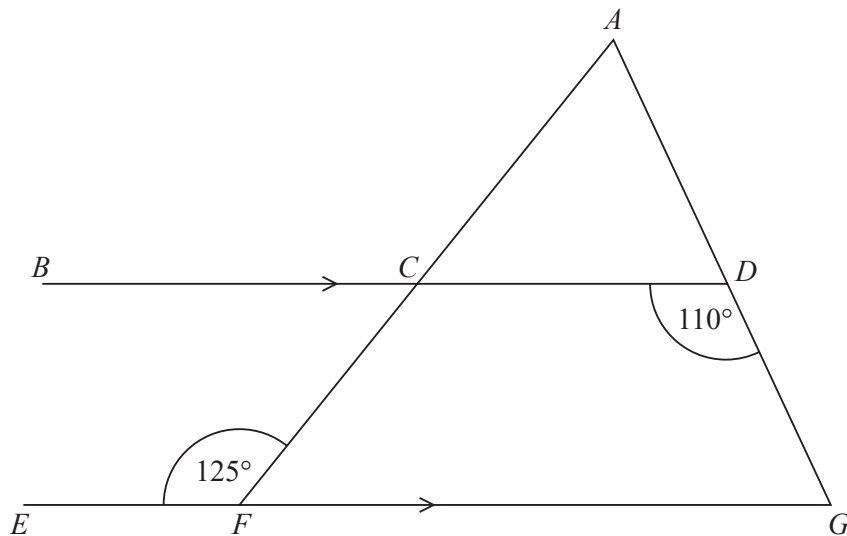
G6 Deriving and Proving Angle Results

Question 5

June 2023 · Paper 3 · Q3

5 marks

- 3 ACF and ADG are straight lines.
 BCD and EFG are parallel lines.



Show that triangle ACD is isosceles.
Give a reason for each stage of your working.

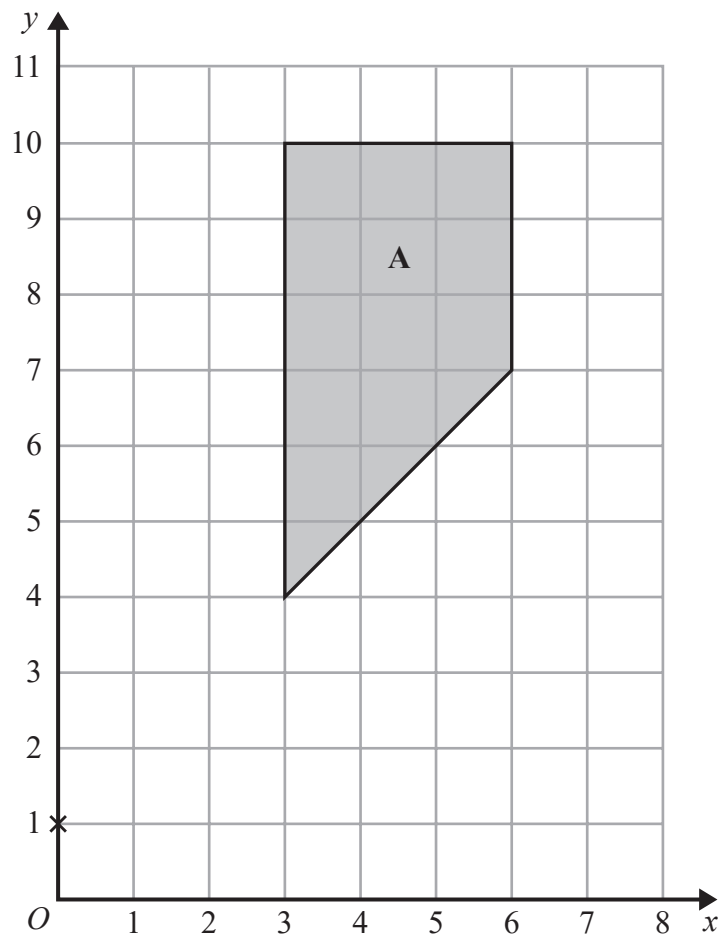
(Total for Question 3 is 5 marks)

Question 6

June 2018 · Paper 2 · Q7

2 marks

7



Enlarge shape A by scale factor $\frac{1}{3}$ centre (0, 1)

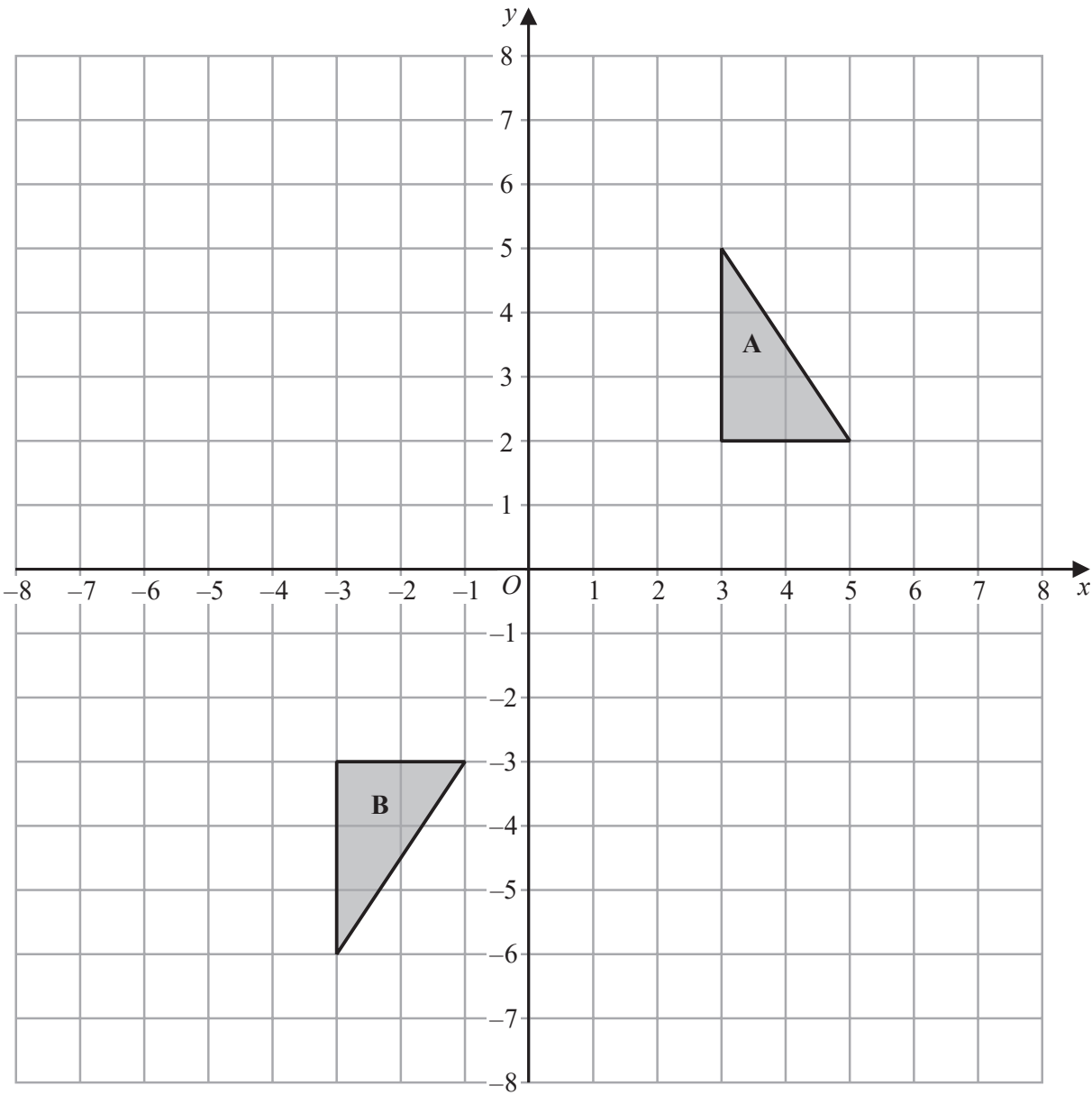
(Total for Question 7 is 2 marks)

Question 7

June 2019 · Paper 1 · Q5

3 marks

5



Shape **A** can be transformed to shape **B** by a reflection in the x -axis followed by a translation $\begin{pmatrix} c \\ d \end{pmatrix}$

Find the value of c and the value of d .

$c = \dots\dots\dots$

$d = \dots\dots\dots$

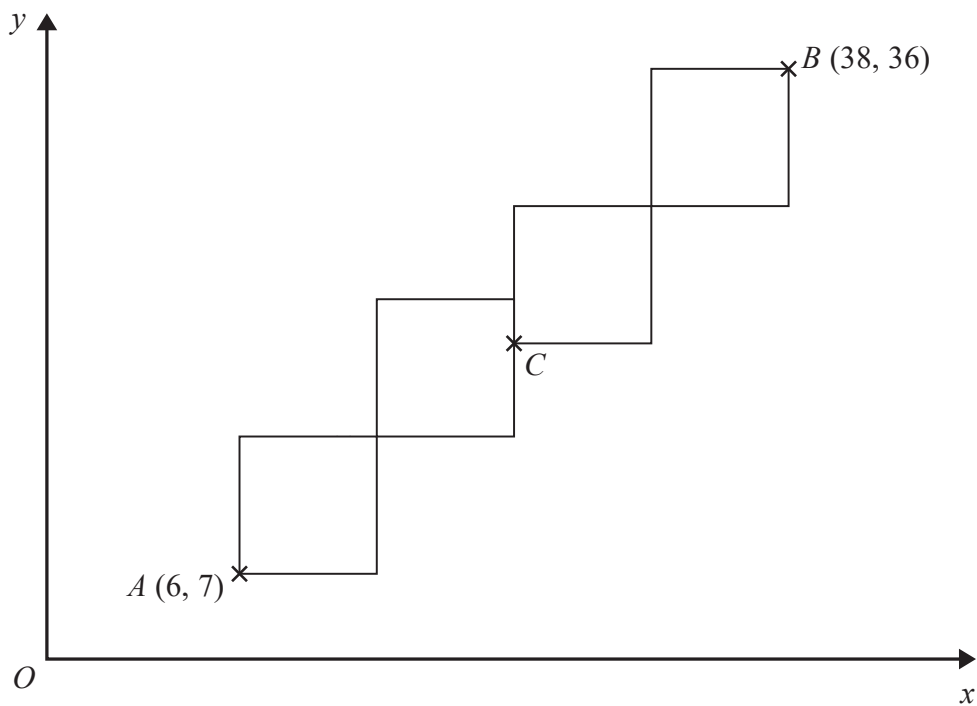
(Total for Question 5 is 3 marks)

Question 8

June 2018 · Paper 1 · Q6

5 marks

- 6 A pattern is made from four identical squares.
- The sides of the squares are parallel to the axes.



Point *A* has coordinates (6, 7)
Point *B* has coordinates (38, 36)
Point *C* is marked on the diagram.

Work out the coordinates of *C*.

(..... ,)

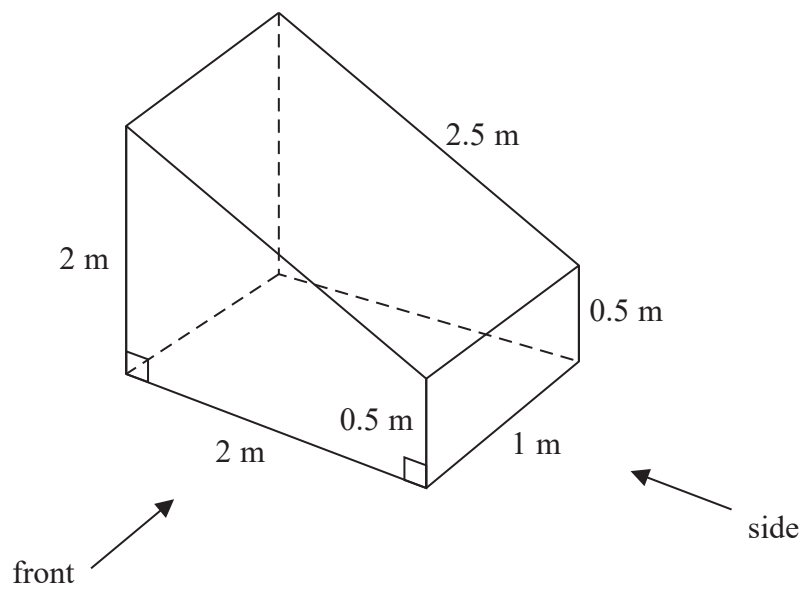
(Total for Question 6 is 5 marks)

Question 9

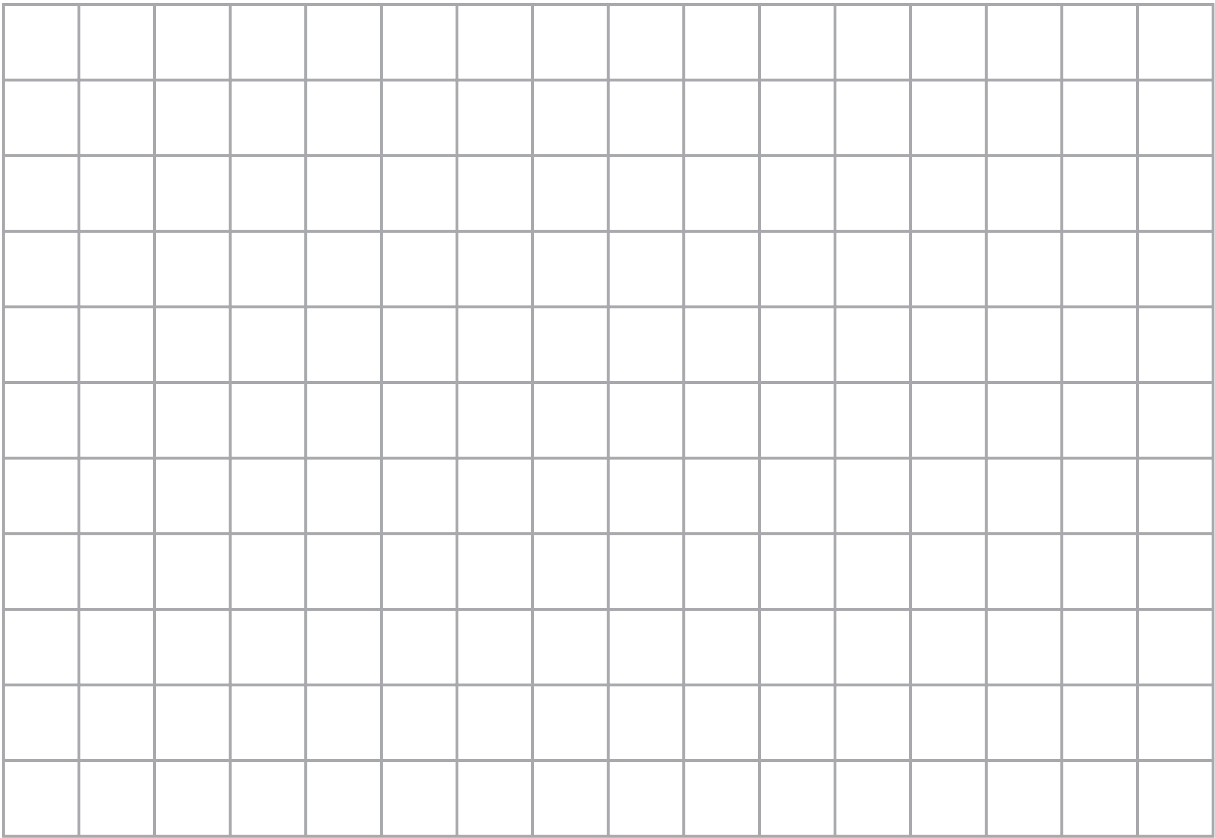
June 2017 · Paper 2 · Q3

4 marks

3 The diagram shows a prism with a cross section in the shape of a trapezium.



On the centimetre grid below, draw the front elevation and the side elevation of the prism.
Use a scale of 2 cm to 1 m.



(Total for Question 3 is 4 marks)

Question 10

November 2023 · Paper 2 · Q6

2 marks

- 6 The bearing of port B from port A is 147°
Work out the bearing of port A from port B .

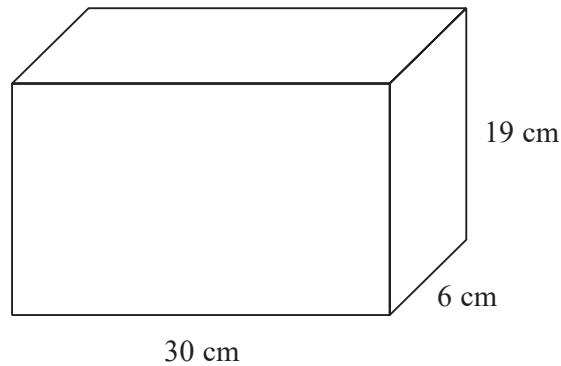
(Total for Question 6 is 2 marks)

Question 11

June 2019 · Paper 2 · Q4

4 marks

- 4 A container is in the shape of a cuboid.



The container is $\frac{2}{3}$ full of water.

A cup holds 275 ml of water.

What is the greatest number of cups that can be completely filled with water from the container?

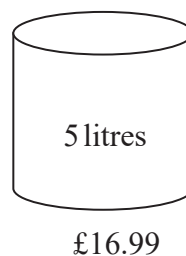
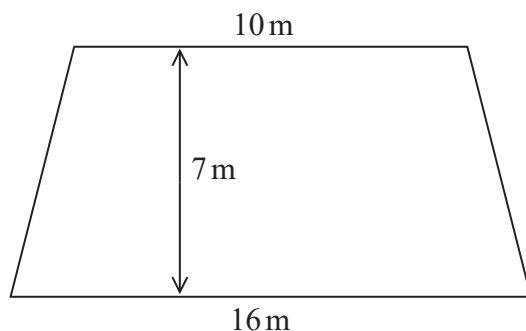
(Total for Question 4 is 4 marks)

Question 12

November 2018 · Paper 2 · Q5

5 marks

- 5 The diagram shows a floor in the shape of a trapezium.



John is going to paint the floor.

Each 5 litre tin of paint costs £16.99

1 litre of paint covers an area of 2 m^2

John has £160 to spend on paint.

Has John got enough money to buy all the paint he needs?

You must show how you get your answer.

(Total for Question 5 is 5 marks)

Question 13

June 2019 · Paper 3 · Q6

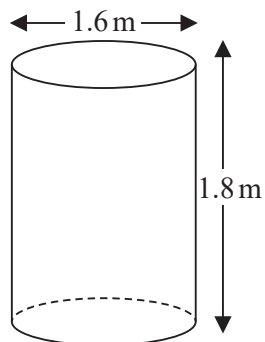
5 marks

- 6 Jeremy has to cover 3 tanks completely with paint.

Each tank is in the shape of a cylinder with a top and a bottom.
The tank has a diameter of 1.6 m and a height of 1.8 m.

Jeremy has 7 tins of paint.
Each tin of paint covers 5 m^2

Has Jeremy got enough paint to cover completely the 3 tanks?
You must show how you get your answer.



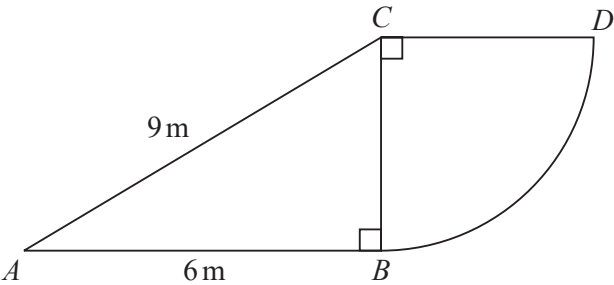
(Total for Question 6 is 5 marks)

Question 14

November 2020 · Paper 2 · Q7

4 marks

7 The diagram shows a right-angled triangle and a quarter circle.



The right-angled triangle ABC has angle $ABC = 90^\circ$
The quarter circle has centre C and radius CB .

Work out the area of the quarter circle.
Give your answer correct to 3 significant figures.
You must show all your working.

..... m²

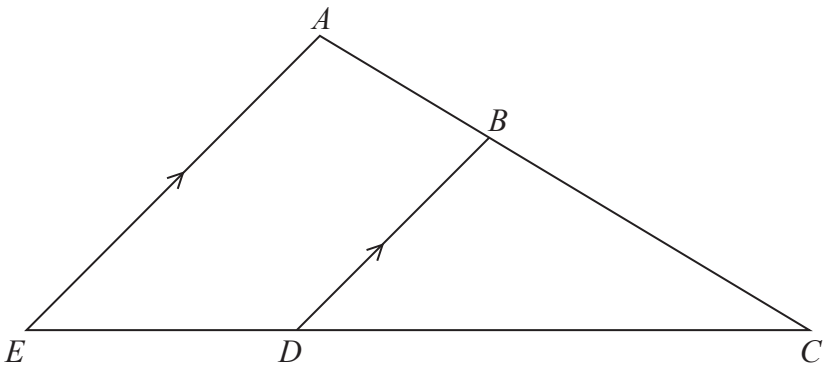
(Total for Question 7 is 4 marks)

Question 15

June 2017 · Paper 2 · Q5

4 marks

5



ABC and EDC are straight lines.
 EA is parallel to DB .

$EC = 8.1\text{ cm}$.
 $DC = 5.4\text{ cm}$.
 $DB = 2.6\text{ cm}$.

(a) Work out the length of AE .

..... cm
(2)

$AC = 6.15\text{ cm}$.

(b) Work out the length of AB .

..... cm
(2)

(Total for Question 5 is 4 marks)

G25 Vector Arithmetic and Geometric Proof

Question 16

November 2020 · Paper 2 · Q6

2 marks

$$\mathbf{6} \quad \mathbf{a} = \begin{pmatrix} 3 \\ 4 \end{pmatrix} \qquad \mathbf{b} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$$

Find $2\mathbf{a} - 3\mathbf{b}$ as a column vector.

$$\left(\begin{array}{c} \\ \text{.....} \\ \\ \text{.....} \end{array} \right)$$

(Total for Question 6 is 2 marks)

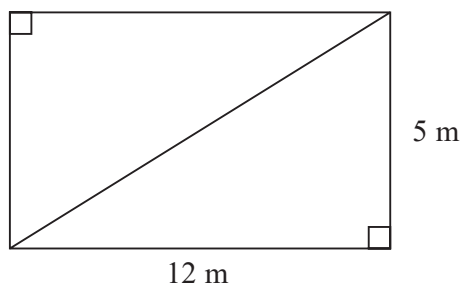
G20.1 Pythagoras' Theorem

Question 17

June 2017 · Paper 1 · Q5

5 marks

- 5 This rectangular frame is made from 5 straight pieces of metal.



The weight of the metal is 1.5 kg per metre.

Work out the total weight of the metal in the frame.

..... kg

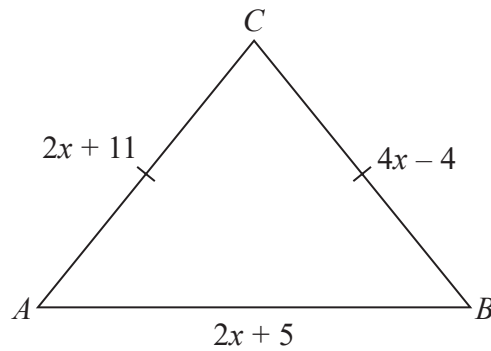
(Total for Question 5 is 5 marks)

Question 18

November 2024 · Paper 2 · Q7

5 marks

- 7 The diagram shows triangle ABC .



In the diagram, all measurements are in centimetres.

$$AC = BC$$

The perimeter of the triangle is 72 cm.

Work out the area of the triangle.

..... cm^2

(Total for Question 7 is 5 marks)

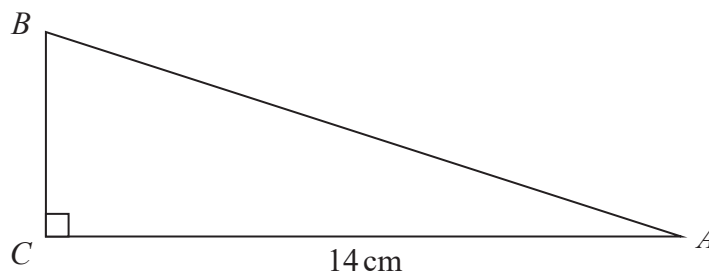
G20.2 Right-Angled Trigonometry

Question 19

November 2018 · Paper 3 · Q6

4 marks

6 ABC is a right-angled triangle.



$AC = 14 \text{ cm}$.

Angle $C = 90^\circ$

size of angle B : size of angle $A = 3 : 2$

Work out the length of AB .

Give your answer correct to 3 significant figures.

.....cm

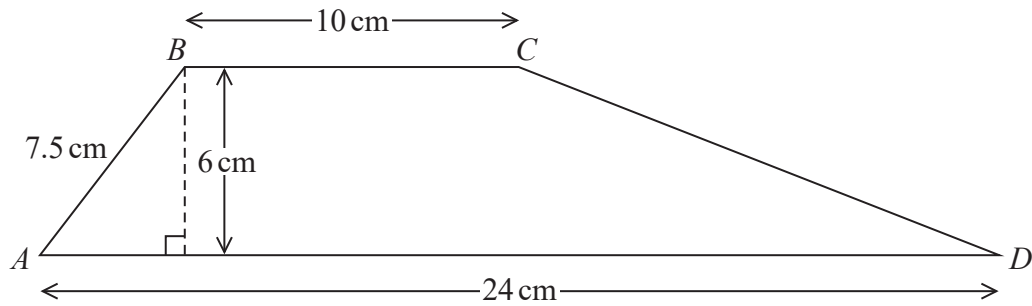
(Total for Question 6 is 4 marks)

Question 20

November 2017 · Paper 2 · Q7

5 marks

7 $ABCD$ is a trapezium.



Work out the size of angle CDA .
Give your answer correct to 1 decimal place.

(Total for Question 7 is 5 marks)