

1MA1 Higher themed papers: Area and perimeter

Write your name here			
Surname	Other names		
Centre Number		Candidate Number	
Pearson Edexcel Level 1/Level 2 GCSE (9–1)			
Mathematics Area and perimeter			
		Paper Reference 1MA1	
You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.			Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is **58**. There are **13** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

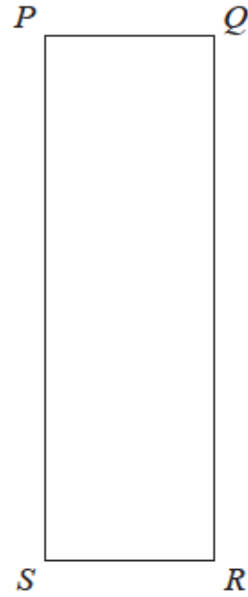
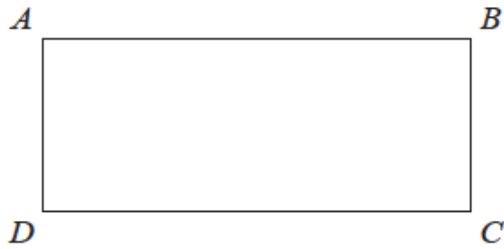
Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

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1 Here are two rectangles.



$QR = 10 \text{ cm}$

$BC = PQ$

The perimeter of $ABCD$ is 26 cm


The area of $PQRS$ is 45 cm^2

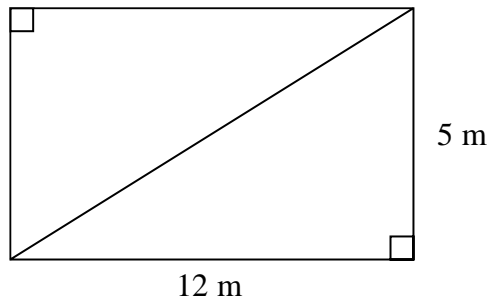
Find the length of AB .

..... cm

(Total for Question 1 is 4 marks)

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



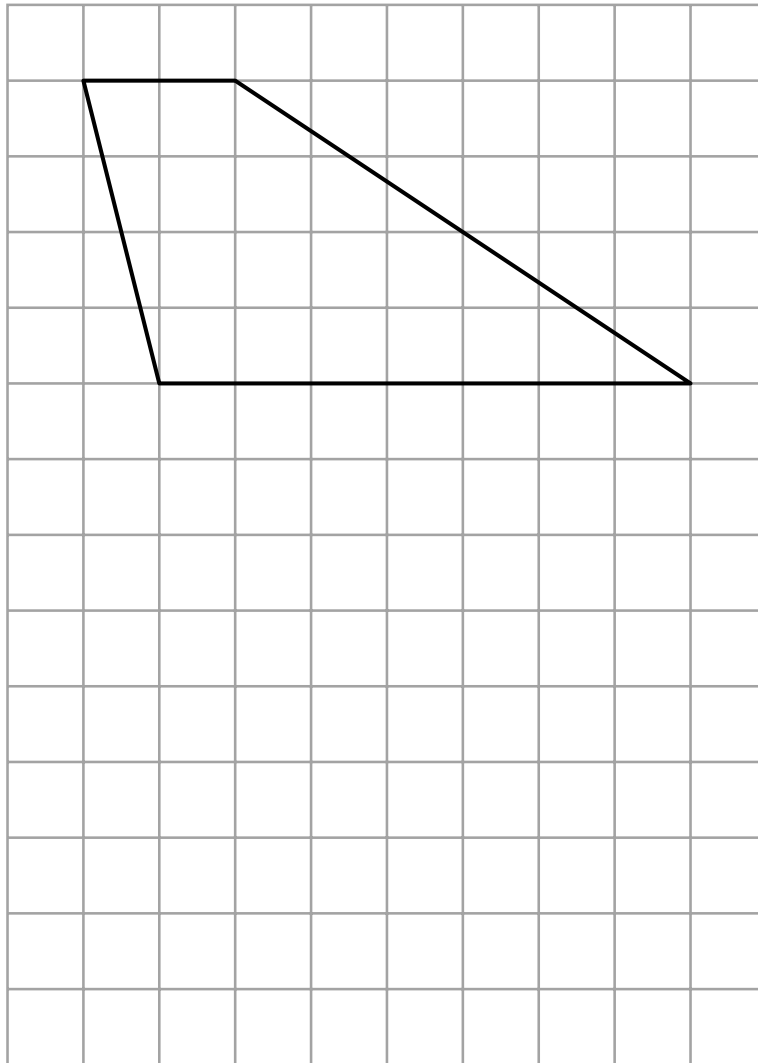
The weight of the metal is 1.5 kg per metre.

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

..... kg
(Total for Question 2 is 5 marks)

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3 Here is a trapezium drawn on a centimetre grid.

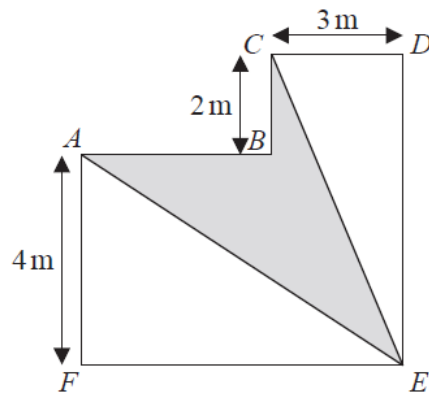


On the grid, draw a triangle equal in area to this trapezium.

(Total for Question 3 is 2 marks)

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4 The diagram shows a shape $ABCDEF$.



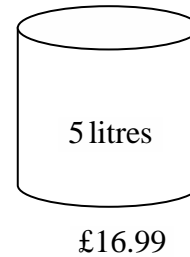
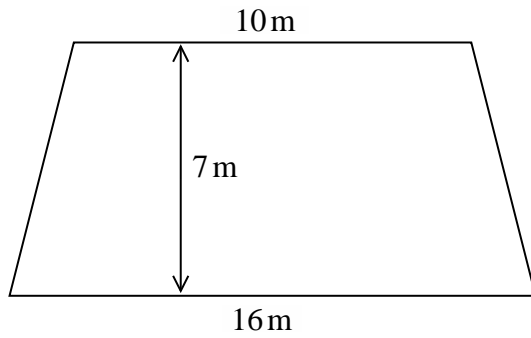
All the corners of the shape are right angles.
The perimeter of the shape is 28 m .

Work out the area of $ABCE$ shown shaded on the diagram.

.....
(Total for Question 4 is 5 marks)

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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 2m^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)

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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.

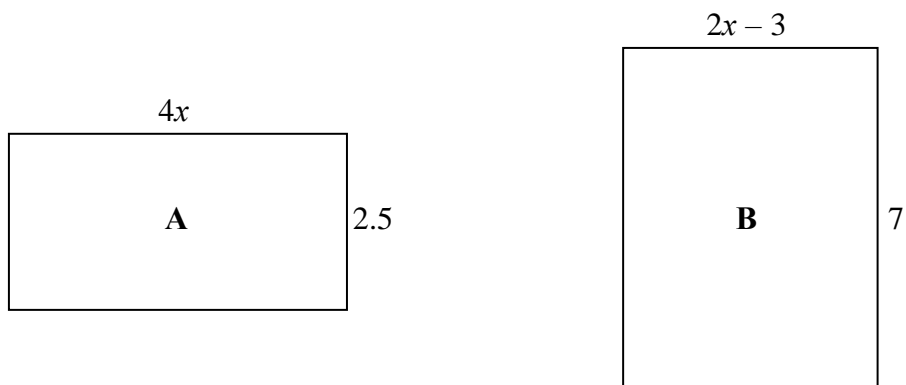
Jeremy has 7 tins of paint.
Each tin of paint covers 5 m^2

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)

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7 Here are two rectangles.



All measurements are in centimetres.

The area of rectangle **A** is equal to the area of rectangle **B**.

Work out the perimeter of rectangle **B**.

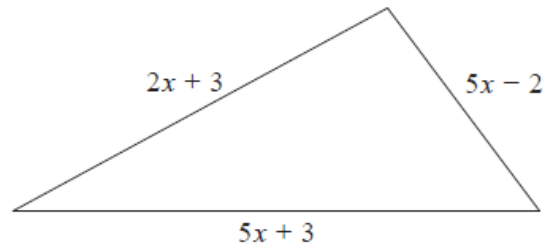
.....cm

(Total for Question 7 is 5 marks)

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8 The perimeter of a square has the same length as the perimeter of this triangle.



All measurements are in centimetres.

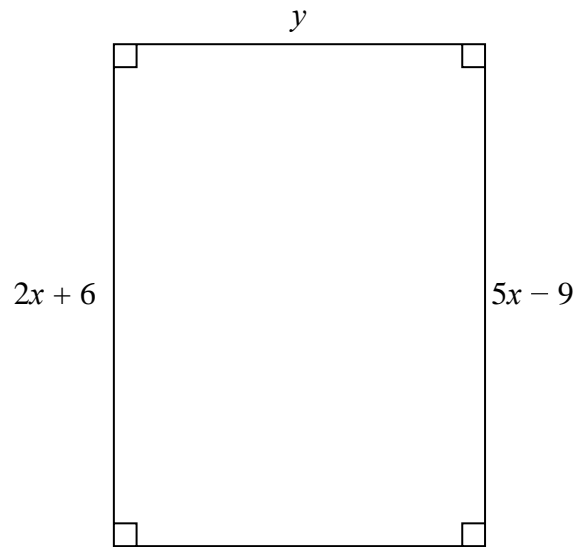
Find an expression, in terms of x , for the length of a side of the square.
Give your answer in its simplest form.

.....
(Total for Question 8 is 3 marks)

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9 Here is a rectangle.



All measurements are in centimetres.

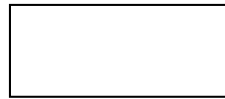
The area of the rectangle is 48 cm^2 .

Show that $y = 3$

(Total for Question 9 is 4 marks)

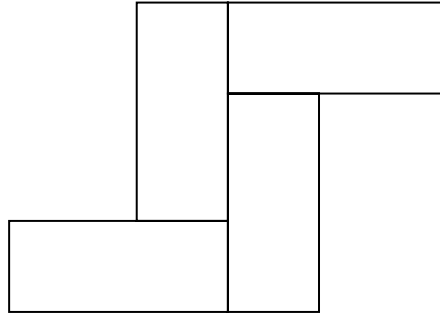
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10 Here is a rectangle.



The length of the rectangle is 7 cm longer than the width of the rectangle.

4 of these rectangles are used to make this 8-sided shape.



The perimeter of the 8-sided shape is 70 cm.

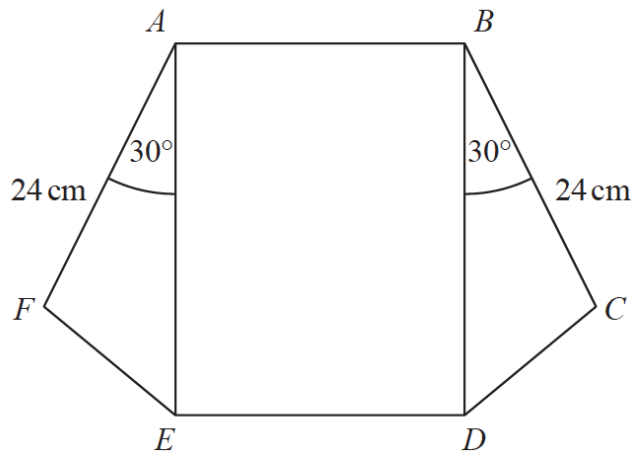
Work out the area of the 8-sided shape.

..... cm²

(Total for Question 10 is 5 marks)

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- 11** The diagram shows a rectangle, $ABDE$, and two congruent triangles, AFE and BCD .



area of rectangle $ABDE$ = area of triangle AFE + area of triangle BCD

$$AB : AE = 1 : 3$$

Work out the length of AE .

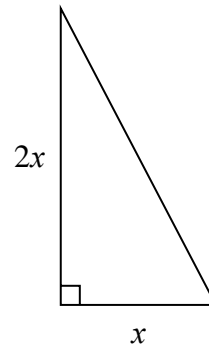
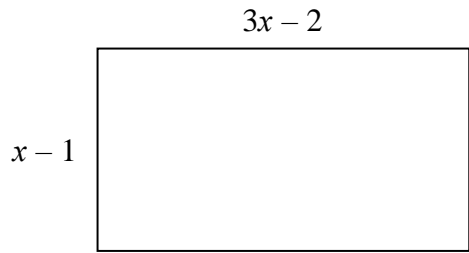
..... cm

(Total for Question 11 is 4 marks)

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12 Here is a rectangle and a right-angled triangle.



All measurements are in centimetres.

The area of the rectangle is greater than the area of the triangle.

Find the set of possible values of x .

.....
(Total for Question 12 is 5 marks)

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13 The length of a rectangle is the same as the length of each side of a square.

The length of the rectangle is 4 cm more than 3 times the width of the rectangle.

The area of the square is 66 cm^2 more than the area of the rectangle.

Find the length and the width of the rectangle.

You must show all your working.

.....
(Total for Question 13 is 6 marks)

TOTAL MARKS FOR PAPER: 58