Name: SOLUTIONS

GCSE (1 - 9)

Area and Perimeter

Buy me a coffee

Solutions by
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These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Summer 2023*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The ***most current*** version of these worksheets will always be available at: kennethstafford.co.uk

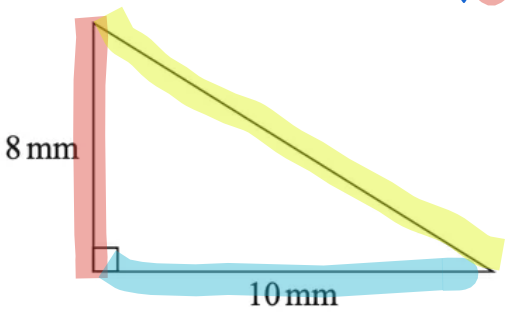
Qu	Paper where the question appeared	Qu	Paper where the question appeared
1	Edexcel, GCSE, Autumn 2021, Paper 2F, Q25	16	Edexcel, GCSE, Summer 2018, Paper 3F, Q17
2	Edexcel, GCSE, Autumn 2021, Paper 3F, Q19	17	Edexcel, GCSE, Summer 2018, Paper 3F, Q21
3	Edexcel, GCSE, Autumn 2020, Paper 3F, Q13	18	Edexcel, GCSE, Autumn 2017, Paper 1F, Q8
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14	Edexcel, GCSE, Autumn 2018, Paper 3F, Q17		
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1

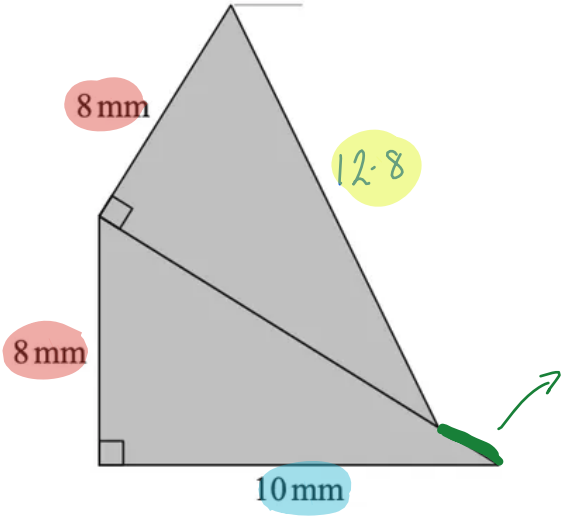
Here is a right-angled triangle.

$\sqrt{8^2 + 10^2} = \sqrt{164}$

$= 12.8$



The shaded shape below is made from two of these triangles.



$12.8 - 10 = 2.8$

Work out the perimeter of the shaded shape.
Give your answer correct to 3 significant figures.

$8 + 8 + 10 + 12.8 + 2.8$

$= 41.6$

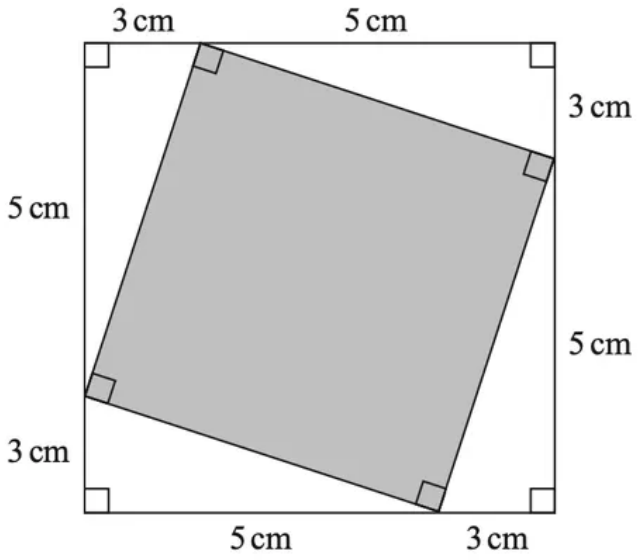
..... mm

(Total for Question 25 is 4 marks)

[Edexcel, GCSE, Autumn 2021, Paper 2F, Q25]

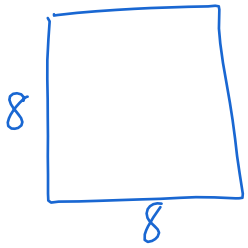
2

This diagram shows two squares.



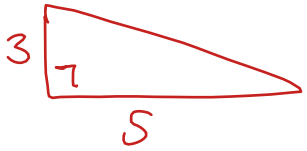
Work out the area of the square shown shaded in the diagram.

Big Square



Area = $8 \times 8 = 64$

Triangle



Area = $\frac{3 \times 5}{2} = 7.5$

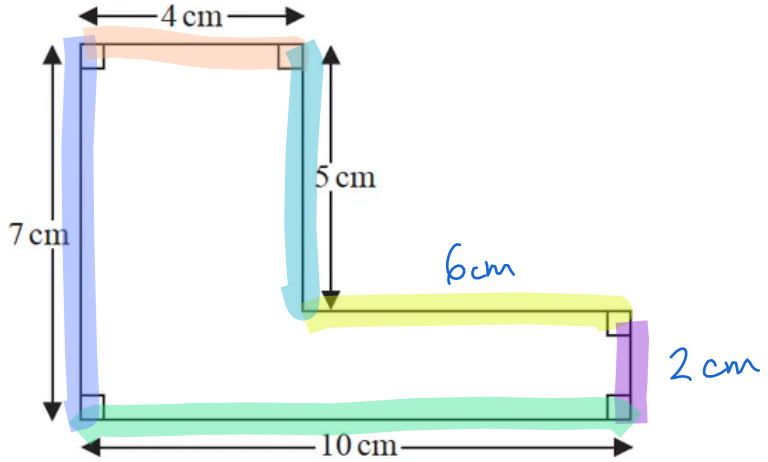
Shaded Square = $64 - 7.5 \times 4 = 34$

$34 cm^2$

(Total for Question 19 is 4 marks)

[Edexcel, GCSE, Autumn 2021, Paper 3F, Q19]

3



Work out the perimeter of this shape.

7 + 4 + 5 + 6 + 2 + 10 = 34

..... cm

(Total for Question 13 is 2 marks)

[Edexcel, GCSE, Autumn 2020, Paper 3F, Q13]

4

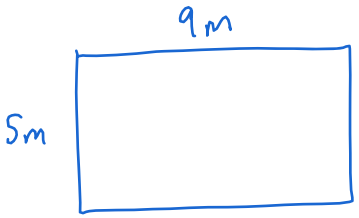
Maisie knows that she needs 3 kg of grass seed to make a rectangular lawn 5 m by 9 m.

Grass seed is sold in 2 kg boxes.

Maisie wants to make a rectangular lawn 10 m by 14 m.
She has 5 boxes of grass seed.

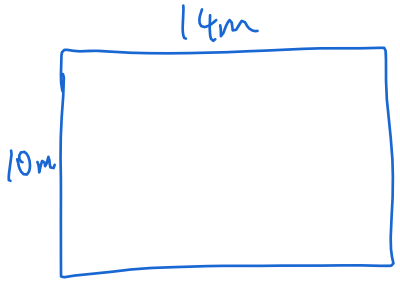
5 boxes = 5 x 2 = 10 kg

(a) Has Maisie got enough grass seed to make a lawn 10 m by 14 m?
You must show all your working.



Area = 5 x 9 = 45 m^2 (3kg grass seed)

15 m^2 = 1 kg



Area = 10 x 14 = 140 m^2

15 m^2 = 1 kg
x10 ↓ ↓ x10
150 m^2 = 10 kg

Yes she does.

(4)

Maisie opens the 5 boxes of grass seed.

She finds that 4 of the boxes contain 2 kg of grass seed.
The other box contains 1 kg of grass seed.

(b) Does this affect whether Maisie has enough grass seed to make her lawn?
Give a reason for your answer.

Yes. 9kg = 135 m^2 of grass seed.
She needs enough for 140 m^2

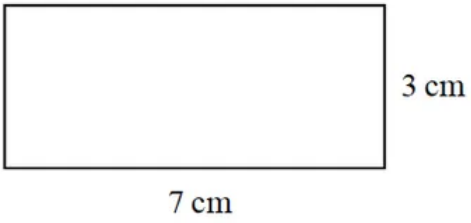
(1)

(Total for Question 26 is 5 marks)

[Edexcel, GCSE, Autumn 2020, Paper 3F, Q26]

5

Here is a rectangle.



Coby has to find the perimeter of this rectangle.

He writes,

Perimeter = 7 × 3

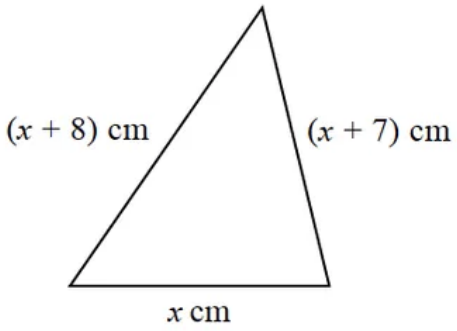
(a) What mistake has Coby made?

He has found the area.

Perimeter = 7 + 3 + 7 + 3 = 20cm

(1)

Here is a triangle.



Iram solves a problem about this triangle to find the value of x.

Her answer is

$x = -2$

(b) Explain why Iram's answer must be wrong.

You cant have a side with a negative length.

(1)

(Total for Question 14 is 2 marks)

[Edexcel, GCSE, Autumn 2019, Paper 3F, Q14]

6

The diagram shows a rectangular garden path.



÷30 = 4

÷30 = 20

Wasim is going to cover the path with paving stones.
Each paving stone is a square of side 30 cm.
Each paving stone costs £2.50

Wasim has £220 to spend on paving stones.

Slabs = 20 × 4 = 80

Show that he has enough money to buy all the paving stones he needs.

80 × 2·50 = £200.

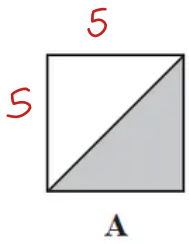
220 > 200

(Total for Question 18 is 4 marks)

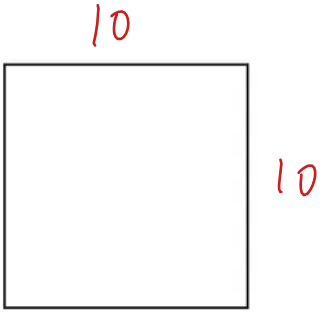
[Edexcel, GCSE, Summer 2019, Paper 1F, Q18]

7

Here are two squares, **A** and **B**.



A



B

The length of the side of square **A** is 50% of the length of the side of square **B**.

Express the area of the shaded region of square **A** as a percentage of the area of square **B**.

Square A = 5 x 5 = 25

Square B = 10 x 10 = 100

Shaded area = 25 ÷ 2 = 12.5

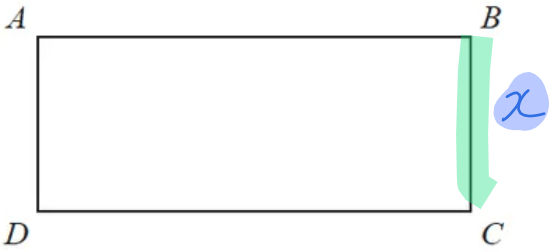
$\frac{12.5}{100}$ = 12.5 ..... %

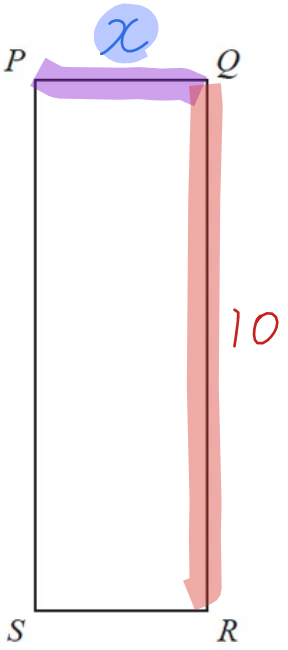
(Total for Question 20 is 3 marks)

[Edexcel, GCSE, Summer 2019, Paper 1F, Q20]

8

Here are two rectangles.





$QR = 10$ cm

$BC = PQ$

The perimeter of $ABCD$ is 26 cm

The area of $PQRS$ is 45 cm^2

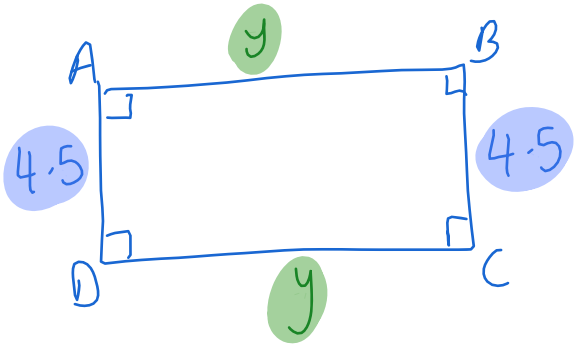
Find the length of AB.

Area of PQRS = $10 \times x = 10x$

$10x = 45$

$x = \frac{45}{10}$

$x = 4.5$



$y + y + 4.5 + 4.5 = 26$

$2y + 9 = 26$

$2y = 17$

$y = 8.5$

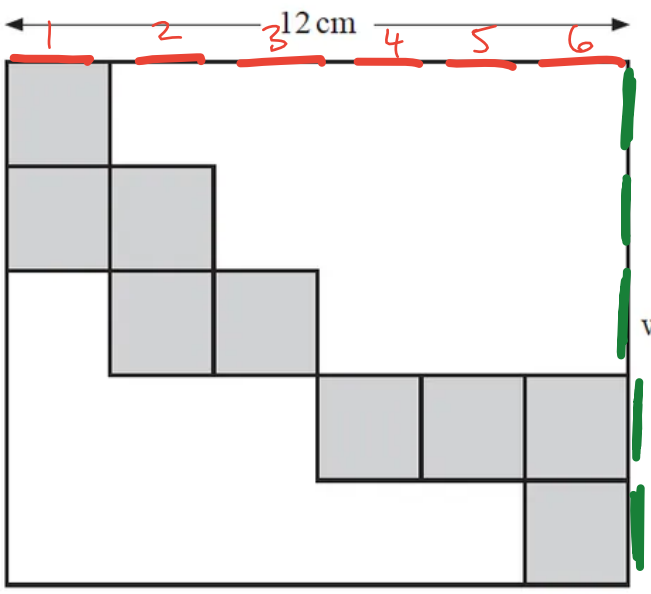
..... cm

(Total for Question 28 is 4 marks)

[Edexcel, GCSE, Summer 2019, Paper 1F, Q28]

9

The diagram shows nine identical squares inside a rectangle.



12 ÷ 6 = 2cm

5 squares

The length of the rectangle is 12 cm.

Work out the width of the rectangle.

2 x 5 = 10cm

10 cm

(Total for Question 13 is 3 marks)

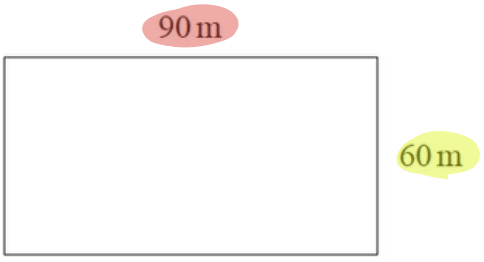
[Edexcel, GCSE, Summer 2019, Paper 2F, Q13]

10

A garden is in the shape of a rectangle 90 m by 60 m.

Flowers are grown in 40% of the garden.
The rest of the garden is grass.

Work out the area of the garden that is grass.



60%

90 x 60 = 5400 m^2

60% of 5400 = 3240

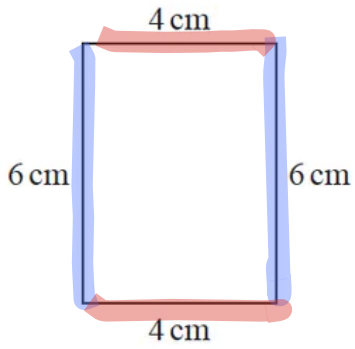
3240 ..... m^2

(Total for Question 15 is 4 marks)

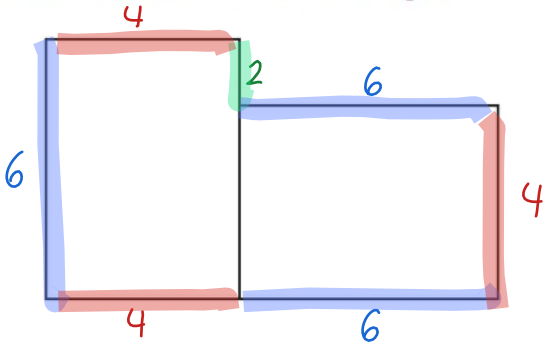
[Edexcel, GCSE, Summer 2019, Paper 2F, Q15]

11

Here is a rectangle.



The 6-sided shape below is made from two of these rectangles.



Work out the perimeter of this 6-sided shape.

$6 - 4 = 2$

$6 + 6 + 6 + 4 + 4 + 4 + 2 = 32\text{cm}$

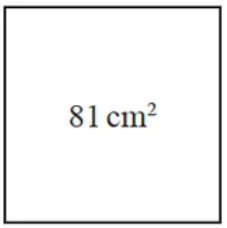
32 ..... cm

(Total for Question 16 is 3 marks)

[Edexcel, GCSE, Summer 2019, Paper 3F, Q16]

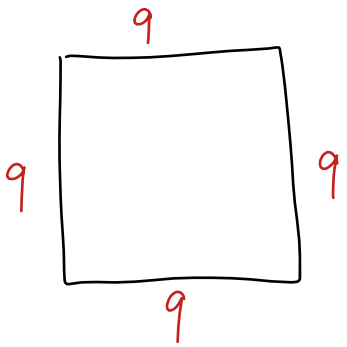
12

A square has an area of 81 cm^2



$\sqrt{81} = 9$

(a) Find the perimeter of the square.



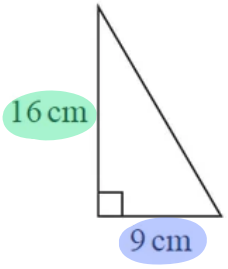
$9+9+9+9 = 36$ cm

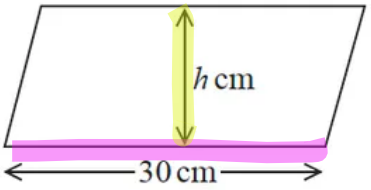
(2)

The diagram shows a right-angled triangle and a parallelogram.

Area $= \frac{16 \times 9}{2}$

$= 72\text{cm}^2$





The area of the parallelogram is 5 times the area of the triangle.
The perpendicular height of the parallelogram is h cm.

(b) Find the value of h.

Area of a parallelogram $= 30 \times h = 30h$

Area of parallelogram $= 72 \times 5 = 360$

$30h = 360$

$h = \frac{360}{30} = 12$

$h =$ 12

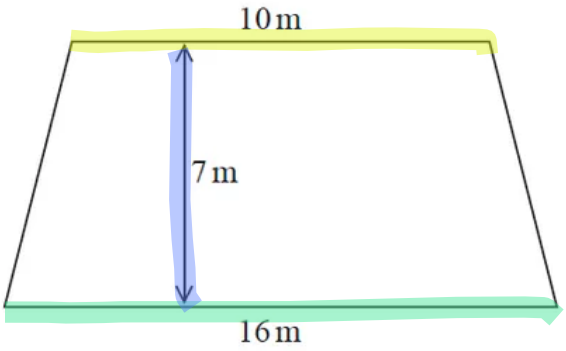
(3)

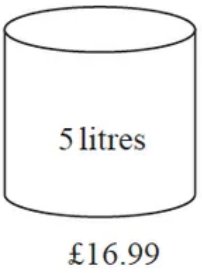
(Total for Question 13 is 5 marks)

[Edexcel, GCSE, Autumn 2018, Paper 2F, Q13]

13

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





£16.99

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 m²

$5 \times 2 = 10 m^2$

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.

Area of trapezium $= \frac{1}{2}(10+16) \times 7 = 91 m^2$

9 tins of paint $= 90 m^2$

10 tins of paint $= 100 m^2$ (10×10) $= £169.90$ (10×16.99)

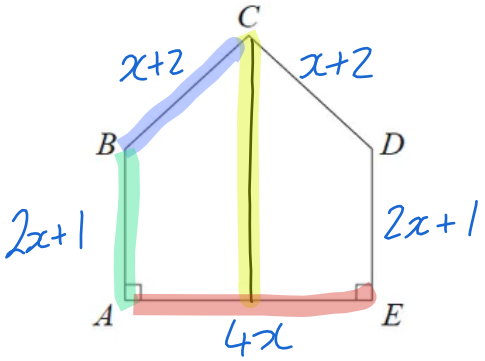
No. John does not have enough.

(Total for Question 24 is 5 marks)

[Edexcel, GCSE, Autumn 2018, Paper 2F, Q24]

14

The diagram shows a pentagon.
The pentagon has one line of symmetry.



$AE = 4x$
$AB = 2x + 1$
$BC = x + 2$

All these measurements are given in centimetres.

The perimeter of the pentagon is 18 cm.

(a) Show that $10x + 6 = 18$

$2x+1 + 4x + 2x+1 + x+2 + x+2 = 10x+6$

$10x + 6 = 18$

(3)

(b) Find the value of x.

$10x + 6 = 18$

$10x = 12$

$x = \frac{12}{10}$

$x = 1.2$

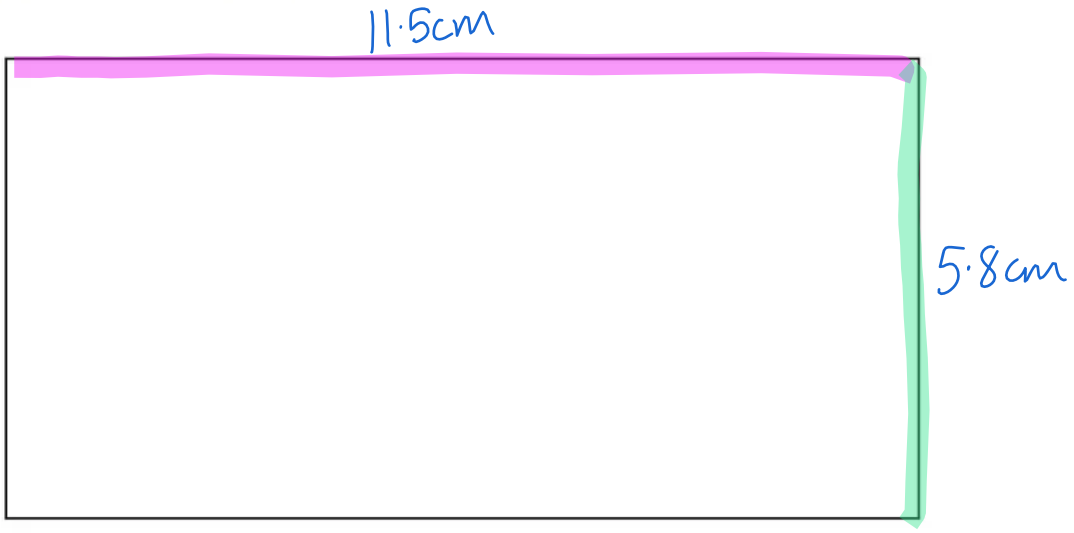
(2)

(Total for Question 17 is 5 marks)

[Edexcel, GCSE, Autumn 2018, Paper 3F, Q17]

15

The diagram shows a scale drawing of a tennis court.



The scale of the drawing is 1 : 200

Work out the perimeter of the real tennis court.
Give your answer in metres.

÷100

11·5 x 200 = 2300 cm = 23m

5·8 x 200 = 1160 cm = 11·6m

34·6 m

34·6 + 34·6 = 69·2m

Your answers may vary based on how this worksheet is printed

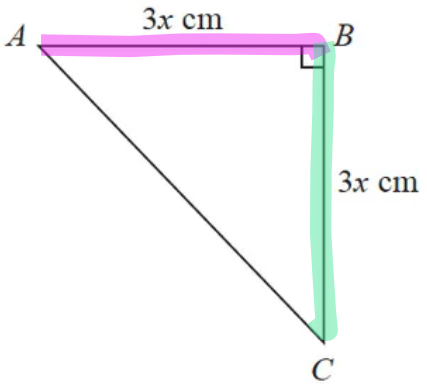
69·2 metres

(Total for Question 12 is 5 marks)

[Edexcel, GCSE, Summer 2018, Paper 3F, Q12]

16

ABC is an isosceles right-angled triangle.



The area of the triangle is $162\,cm^2$

Work out the value of x.

$$\frac{(3x)(3x)}{2} = 162$$

$$(3x)(3x) = 162 \times 2$$

$$9x^2 = 324$$

$$x^2 = 36$$

$$x = 6$$

$x =$ 6

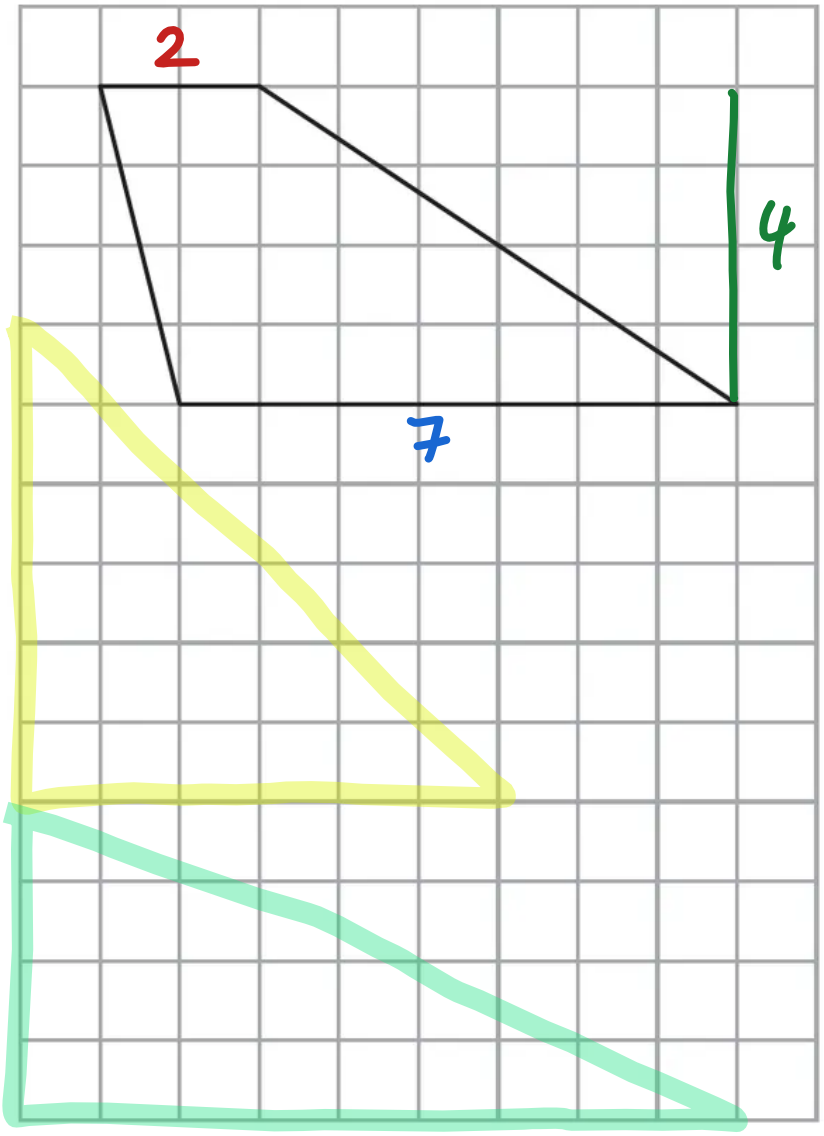
(Total for Question 17 is 3 marks)

[Edexcel, GCSE, Summer 2018, Paper 3F, Q17]

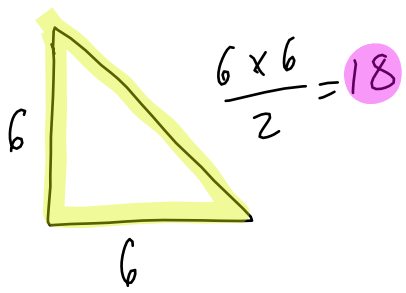
17

Here is a trapezium drawn on a centimetre grid.

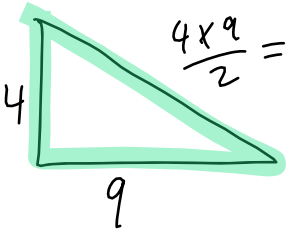
Area $= \frac{1}{2}(2+7) \times 4 = 18\text{cm}^2$



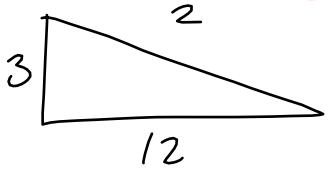
On the grid, draw a triangle equal in area to this trapezium.



$\frac{6 \times 6}{2} = 18$



$\frac{4 \times 9}{2} = 18$



$\frac{3 \times 12}{2} = 18$

(Total for Question 21 is 2 marks)

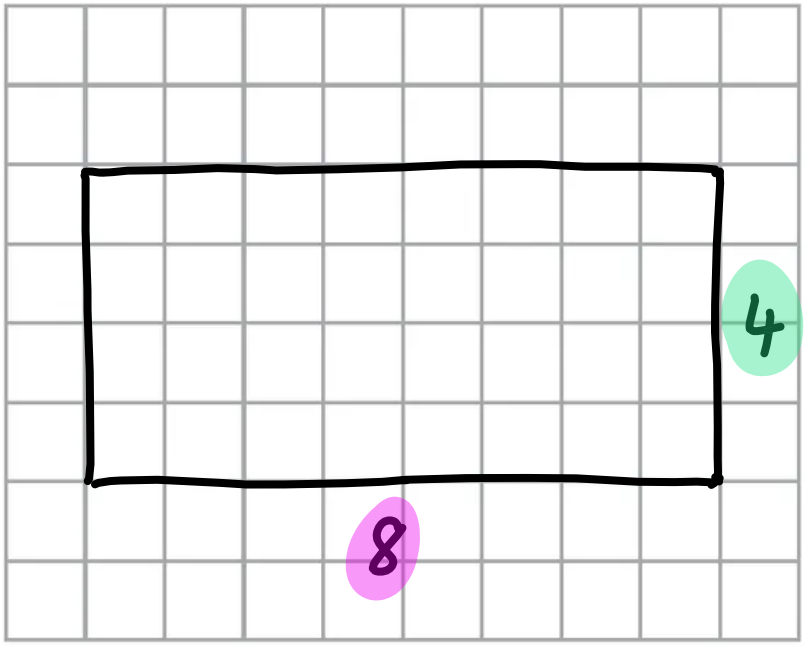
[Edexcel, GCSE, Summer 2018, Paper 3F, Q21]

18

The length of a rectangle is twice as long as the width of the rectangle.
The area of the rectangle is 32 cm^2.

Draw the rectangle on the centimetre grid.

$1 \times 32 = 32$
$2 \times 16 = 32$
$4 \times 8 = 32$

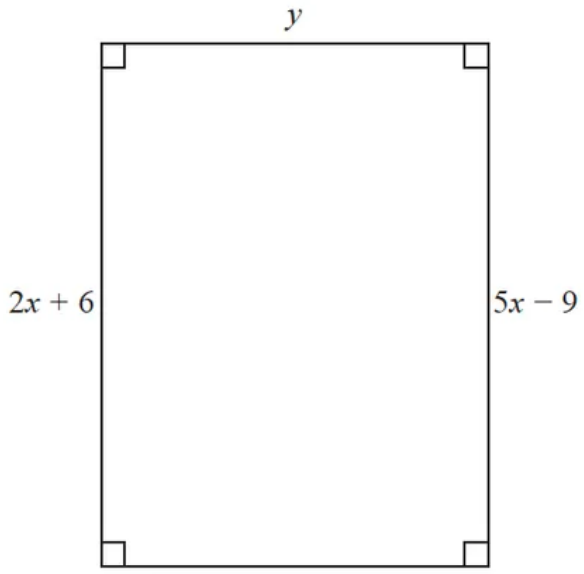


(Total for Question 8 is 2 marks)

[Edexcel, GCSE, Autumn 2017, Paper 1F, Q8]

19

Here is a rectangle.



All measurements are in centimetres.

The area of the rectangle is 48 cm^2.

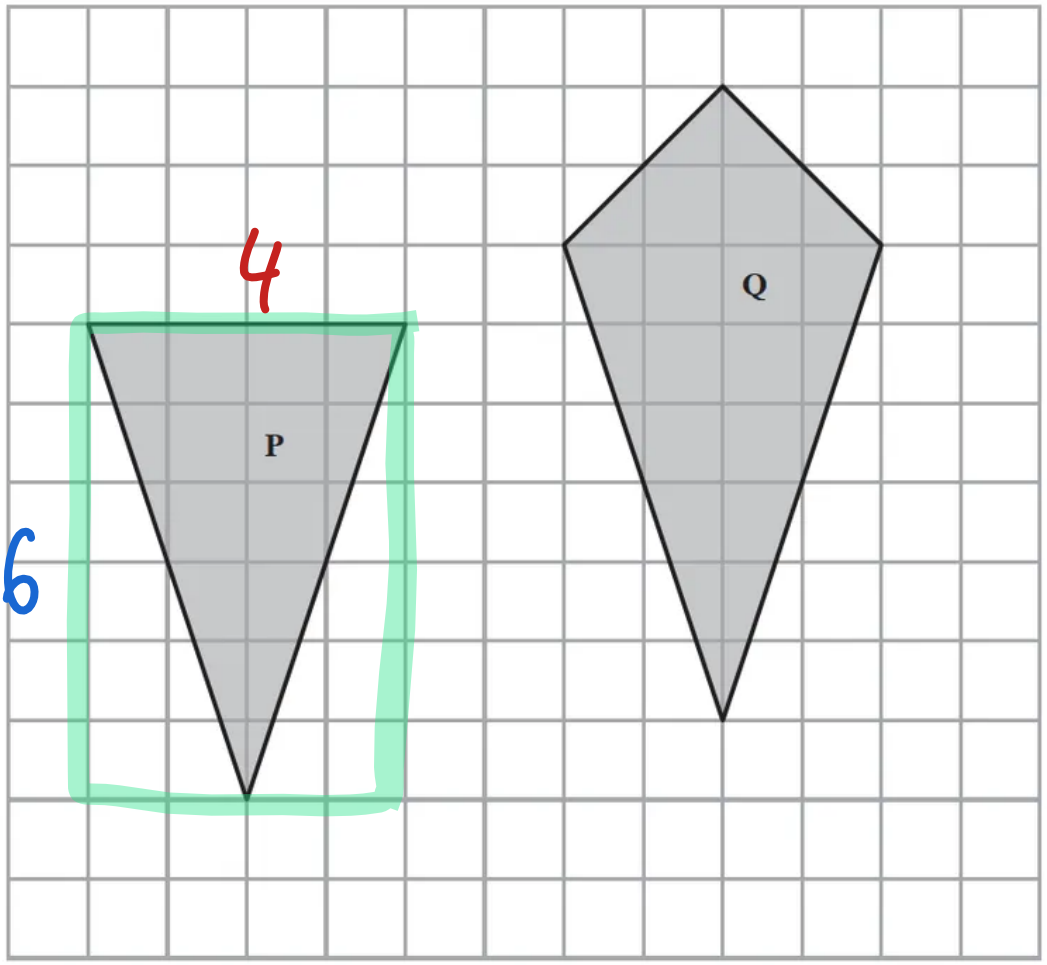
Show that $y = 3$

(Total for Question 28 is 4 marks)

[Edexcel, GCSE, Autumn 2017, Paper 1F, Q28]

20

The diagram shows two shapes drawn on a centimetre grid.



(a) Find the area of shape **P**.

$$\frac{4 \times 6}{2} = \frac{24}{2} = 12$$

12 cm^2

(2)

(b) Write down the mathematical name of quadrilateral **Q**.

Kite

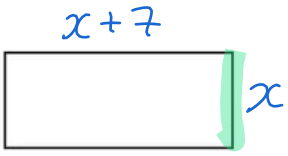
(1)

(Total for Question 10 is 3 marks)

[Edexcel, GCSE, Autumn 2017, Paper 2F, Q10]

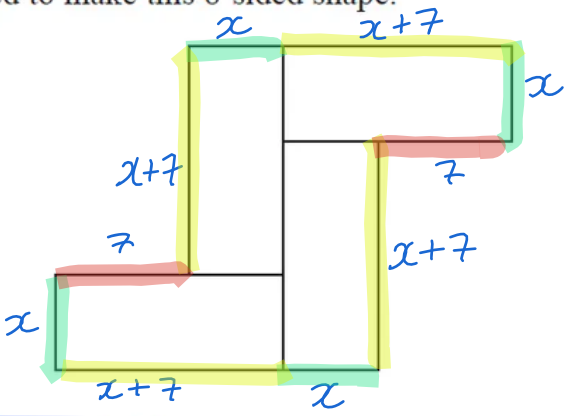
21

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.

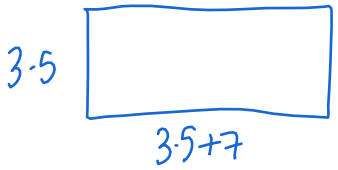
$x+7+x+7+x+7+x+7+x+x+x+x+7+7=8x+42$

$8x+42=70$

$8x=28$

$x=\frac{28}{8}$

$x=3.5$



Area $= 3.5 \times 10.5 = 36.75$

$36.75 \times 4 = 147$

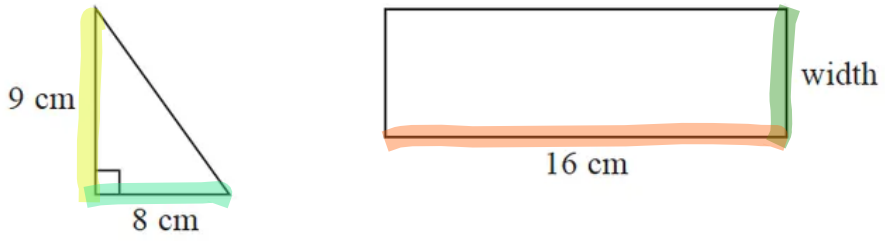
..... cm²

(Total for Question 24 is 5 marks)

[Edexcel, GCSE, Autumn 2017, Paper 3F, Q24]

22

Here are a triangle and a rectangle.



The area of the rectangle is 6 times the area of the triangle.

Work out the width of the rectangle.

Area of triangle = $\frac{9 \times 8}{2} = \frac{72}{2} = 36\text{cm}^2$

Area of rectangle = $36 \times 6 = 216\text{cm}^2$

Width = $216 \div 16 = 13.5\text{cm}$

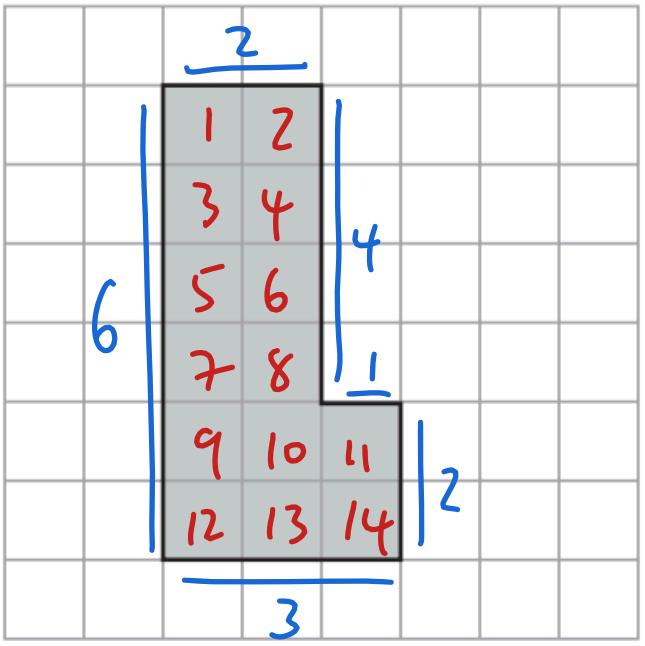
13.5 ..... cm

(Total for Question 15 is 4 marks)

[Edexcel, GCSE, Summer 2017, Paper 1F, Q15]

23

The diagram shows a shape on a centimetre grid.



(a) Find the area of the shape.

14 ..... cm^2

(1)

(b) Find the perimeter of the shape.

18 ..... cm

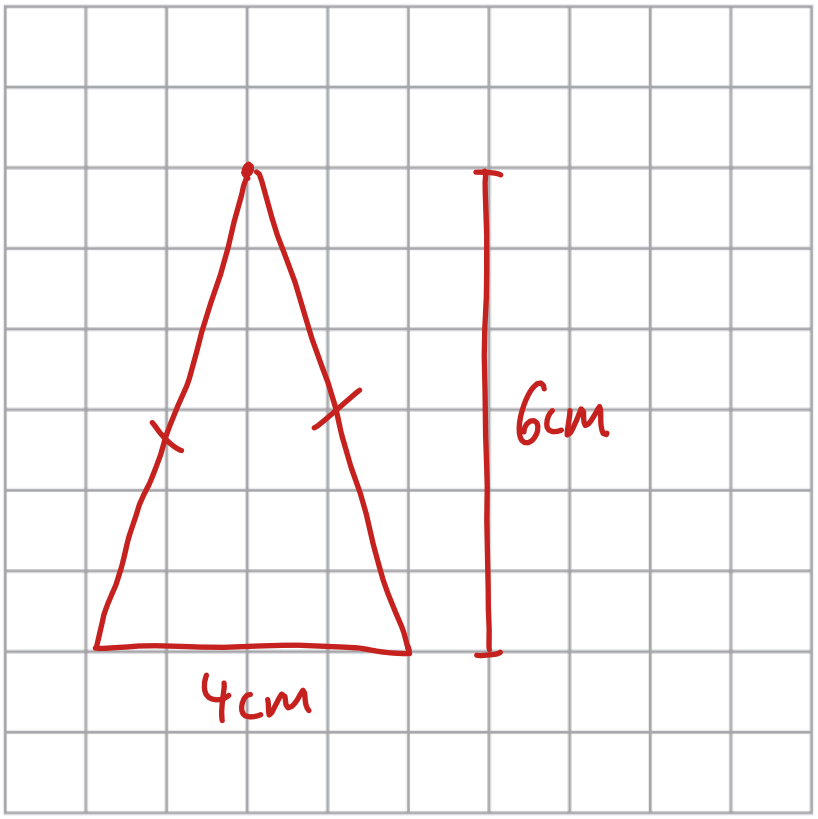
(1)

(Total for Question 6 is 2 marks)

[Edexcel, GCSE, Summer 2023, Paper 3F, Q6]

24

On the centimetre grid, draw an isosceles triangle with an area of 12 cm²



$\frac{4 \times 6}{2} = \frac{24}{2}$

$= 12\text{cm}^2$

(Total for Question 16 is 2 marks)

[Edexcel, GCSE, Summer 2022, Paper 3F, Q16]