Name: SOLUTIONS

GCSE (1 - 9)

Pythagoras Theorem

Buy me a coffee

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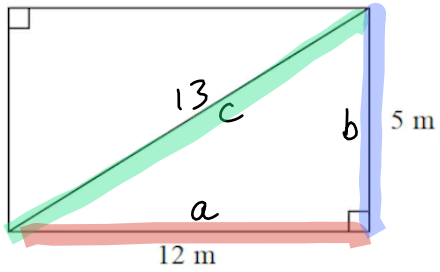
These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Summer 2023*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The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

Question	Where the question appeared
1	Edexcel, GCSE, Summer 2017, Paper 1F, Q25
2	Edexcel, GCSE, Autumn 2017, Paper 2F, Q22
3	Edexcel, GCSE, Summer 2018, Paper 2F, Q26
4	Edexcel, GCSE, Autumn 2020, Paper 2F, Q27
5	Edexcel, GCSE, Autumn 2021, Paper 3F, Q19
6	Edexcel, GCSE, Autumn 2021, Paper 2F, Q25
7	Edexcel, GCSE, Summer 2021, Paper 3F, Q22

1

$a^2 + b^2 = c^2$

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.

$12^2 + 5^2 = c^2$

$144 + 25 = c^2$

$169 = c^2$

$c = \sqrt{169}$

$c = 13$

Total metal $= 12 + 12 + 5 + 5 + 13$

$= 47\text{m}$

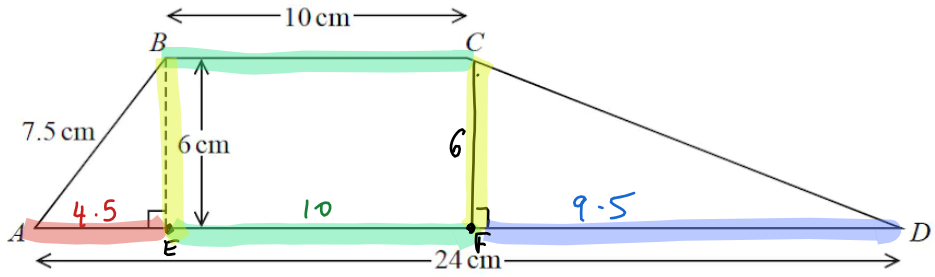
$47 \times 1.5 = 70.5$ kg

(Total for Question 25 is 5 marks)

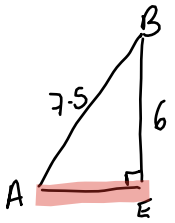
[Edexcel, GCSE, Summer 2017, Paper 1F, Q25]

2

ABCD is a trapezium.



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



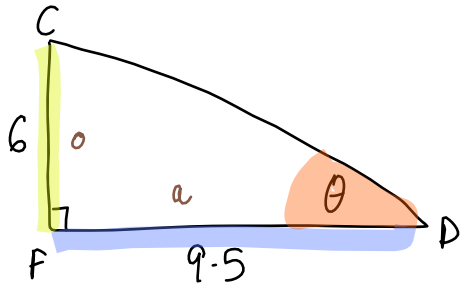
$AE^2 = AB^2 - BE^2$

$AE^2 = (7.5)^2 - (6)^2$

$AE^2 = 20.25$

$AE = \sqrt{20.25}$

$AE = 4.5$



$\tan\theta = \frac{opp}{adj}$

$\theta = \tan^{-1}\left(\frac{6}{9.5}\right)$

$\theta = 32.2756$

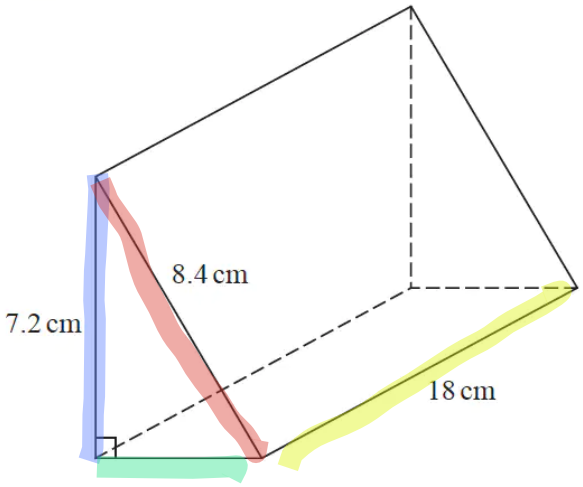
32.3 °

(Total for Question 22 is 5 marks)

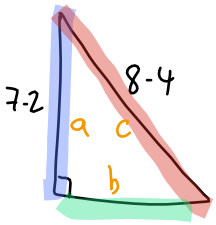
[Edexcel, GCSE, Autumn 2017, Paper 2F, Q22]

3

Here is a triangular prism.



Work out the volume of the prism.
Give your answer correct to 3 significant figures.



$b^2 = c^2 - a^2$

$b^2 = 8.4^2 - 7.2^2$

$b^2 = 18.72$

$b = \sqrt{18.72}$

$b = 4.326$

$$\text{Volume} = \frac{7.2 \times 4.326}{2} \times 18 = 280.367$$

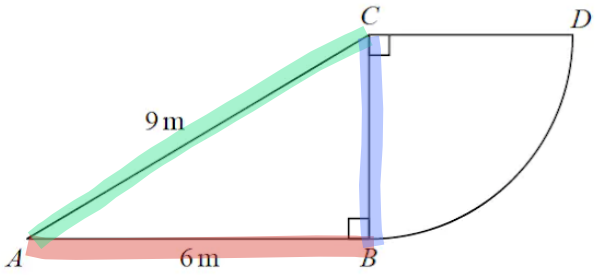
280 cm³

(Total for Question 26 is 5 marks)

[Edexcel, GCSE, Summer 2018, Paper 2F, Q26]

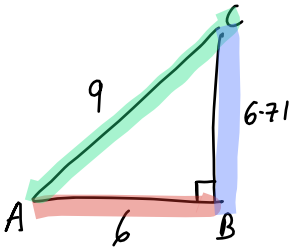
4

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

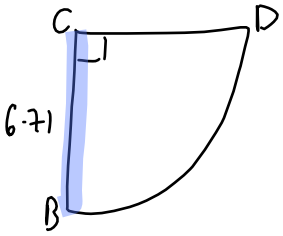


The right-angled triangle ABC has angle $ABC = 90°$
The quarter circle has centre C and radius CB.

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



$CB^2 = AC^2 - AB^2$
$CB^2 = 9^2 - 6^2$
$CB^2 = 45$
$CB = \sqrt{45} = 6·71$



$$\text{Area} = \frac{\pi \times 6·71^2}{4} = \frac{141·371}{4} = 35·34$$

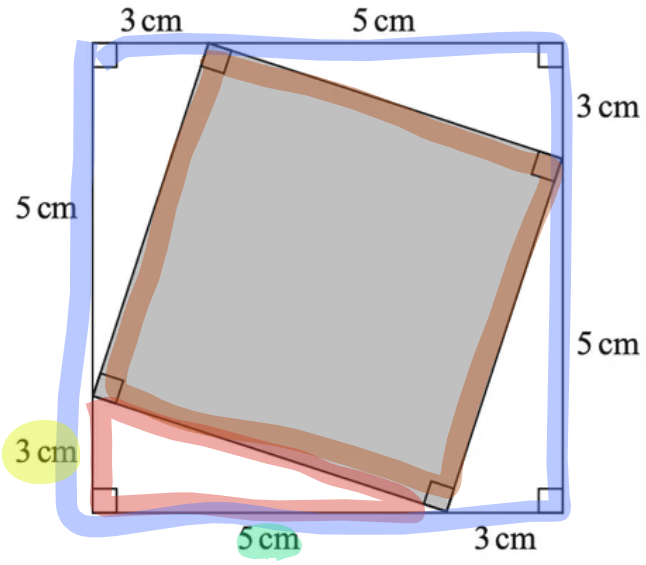
35·3 ..... m^2

(Total for Question 27 is 4 marks)

[Edexcel, GCSE, Autumn 2020, Paper 2F, Q27]

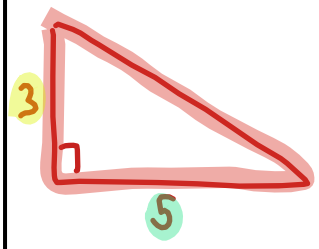
5

This diagram shows two squares.



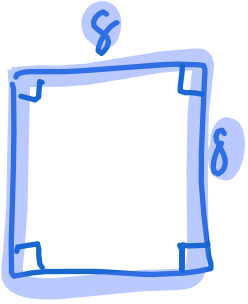
3 + 5 = 8

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



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

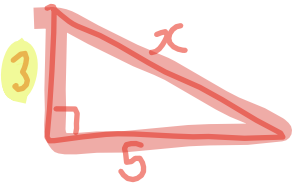
4 triangles = 4 × 7.5 = 30



Area = 8^2 = 64

Shaded Area = 64 − 30 = 34

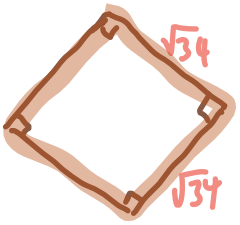
or



$x^2 = 3^2 + 5^2$

$x^2 = 34$

$x = \sqrt{34}$



Area = $\sqrt{34} \times \sqrt{34}$

= 34

34 cm^2

worth 1 mark

(Total for Question 19 is 4 marks)

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

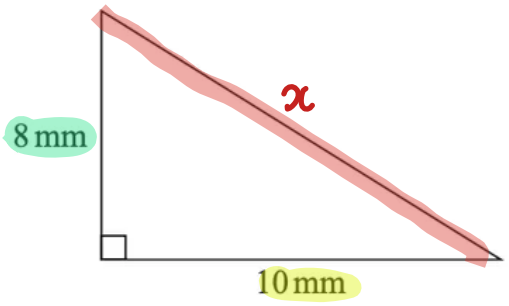
6

Here is a right-angled triangle.

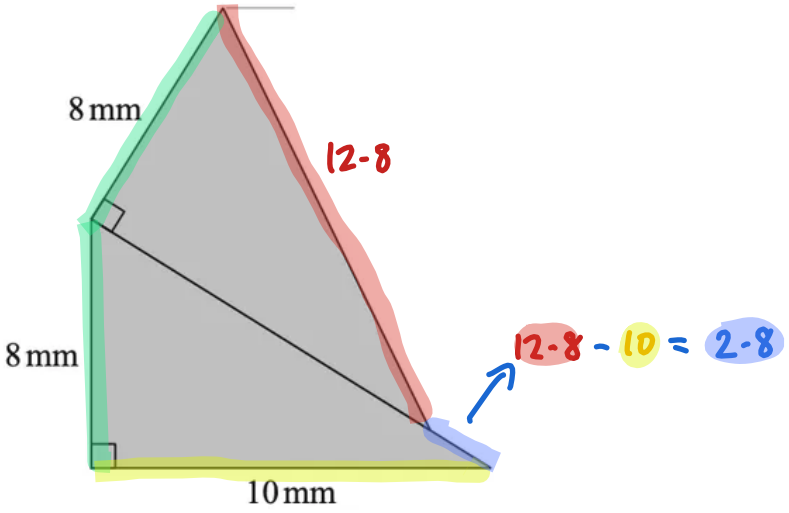
$x^2 = 8^2 + 10^2 = 164$

$x = \sqrt{164}$

$x = 12.8$



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



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

$P = 8 + 8 + 12.8 + 10 + 2.8 = 41.6$

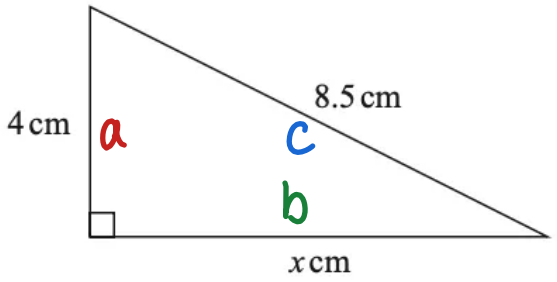
41.6 ..... mm

(Total for Question 25 is 4 marks)

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

7

Here is a right-angled triangle.



Work out the value of x.

$a^2 + b^2 = c^2$

$4^2 + x^2 = 8.5^2$

$16 + x^2 = 72.25$

$x^2 = 72.25 - 16$

$x^2 = 56.25$

$x = \sqrt{56.25}$

$x =$ 7.5

(Total for Question 22 is 2 marks)

[Edexcel, GCSE, Summer 2021, Paper 3F, Q22]