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AQA

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

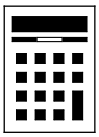
Functional Skills Level 2 MATHEMATICS

Paper 2 Calculator

Tuesday 25 February 2020 Afternoon Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:



- a calculator
- mathematical instruments.

For Examiner's Use	
Question	Mark
1–5	
6	
7	
8	
9	
TOTAL	

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.
- State the units of your answer where appropriate.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- If your calculator does not have a π button, take the value of π to be 3.142

Advice

In all calculations, show clearly how you work out your answer.

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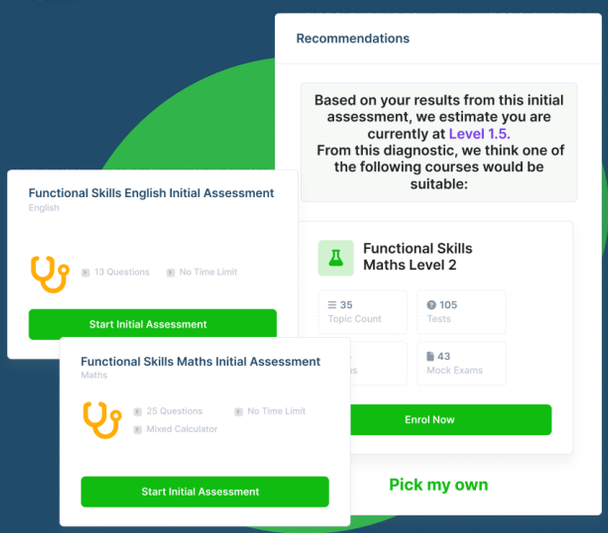
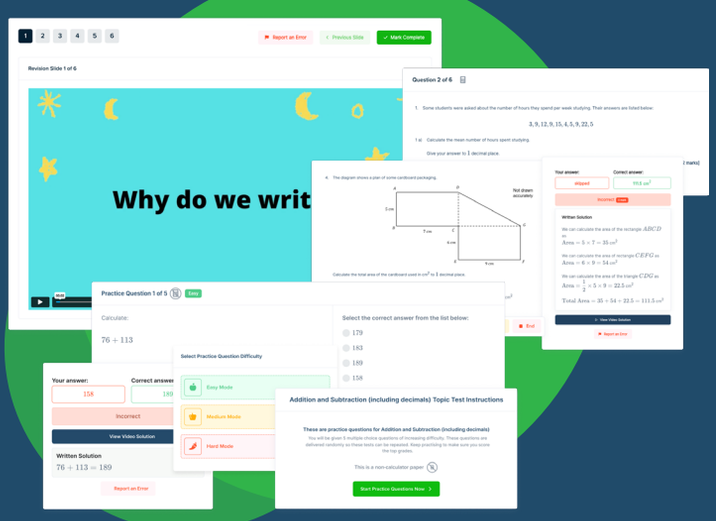
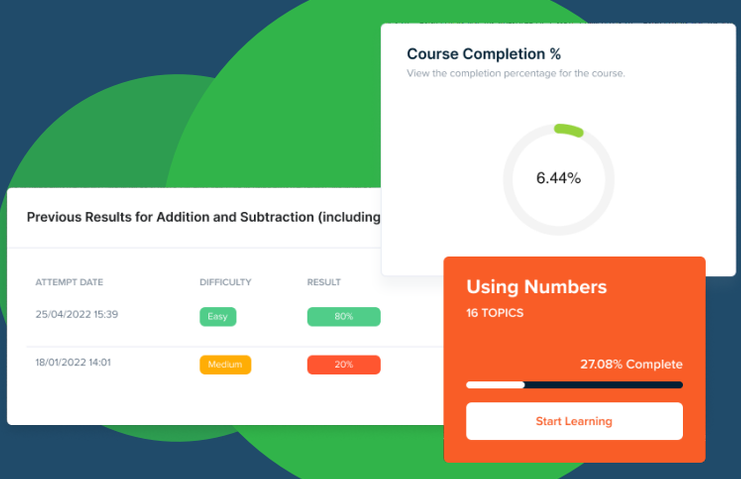
FUNCTIONAL SKILLS ONLINE COURSES



- Your answers are analysed to determine your Current Level
- Suggested courses for you to enrol on based on your calculated level
- Always know the level you are currently working at
- Determine when you are ready to sit your exam

- Explainer videos on every topic
- Quick-fire style mutiple choice questions
- Test your knowledge with exam-style questions
- Written solutions for all questions





- See your progress through as you progress through each topic area
- Get your average scores for practice questions, topic tests and mock exams
- View all practice question, topic test and mock exam attempts over time
- View historical attempts to analyse your progress over time

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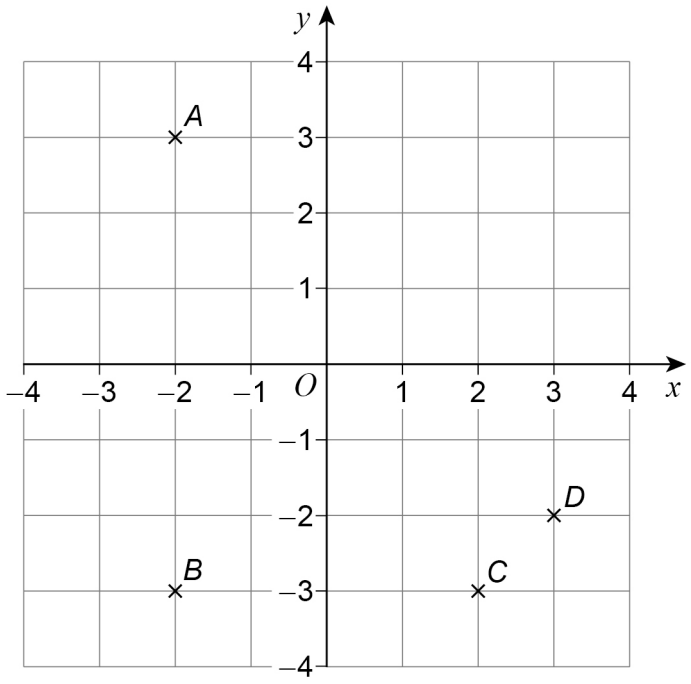
Section A

Answer **all** questions in the spaces provided.

1 Which point has the coordinates (–2, 3)?

(x, y)



Circle your answer.

[1 mark]

A B C D

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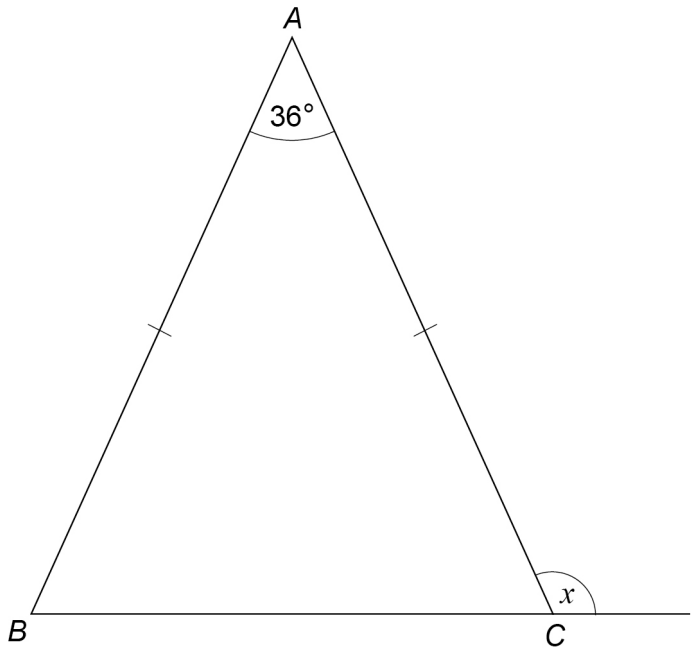
2 Here is an isosceles triangle.

$AB = AC$



Work out the size of angle x.

[3 marks]

ABC = BCA Since isosceles

180 − 36 = 144 144 ÷ 2 = 72

ABC = BCA = 72

Angles in straight line add to 180

180 − 72 = 108

Answer 108 °

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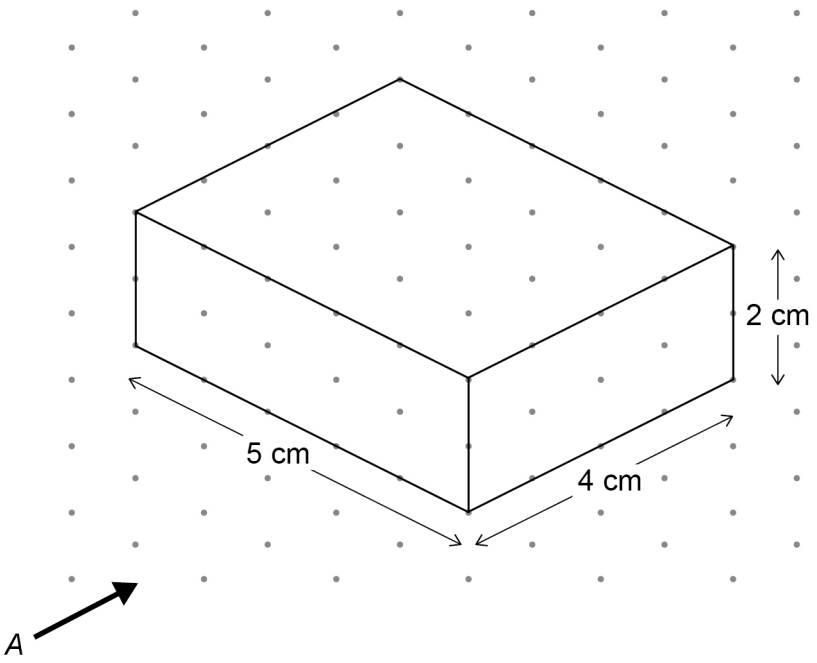
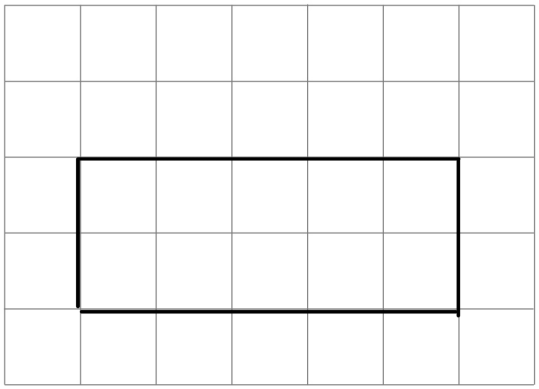
3 A cuboid is shown below.



3 (a) Draw the elevation of the cuboid in the direction of the arrow.

[1 mark]



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3 (b) Work out the total surface area of the cuboid.

[3 marks]

$5 \times 4 \times 2 = 40$

$2 \times 4 \times 2 = 16$

$2 \times 5 \times 2 = 20$

$40 + 16 + 20 = 76$

Answer 76 cm^2

Turn over for the next question

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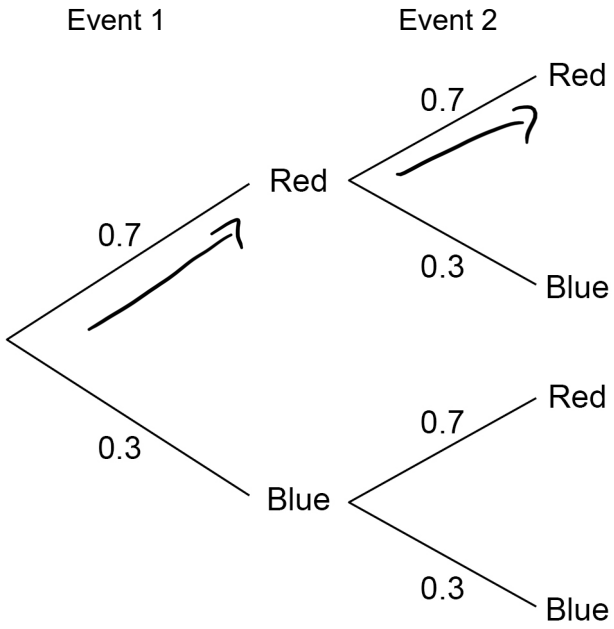
4 Here is a tree diagram.



Work out the probability of Red in Event 1 **and** Red in Event 2

[2 marks]

$0.7 \times 0.7 = 0.49$

Answer 0.49

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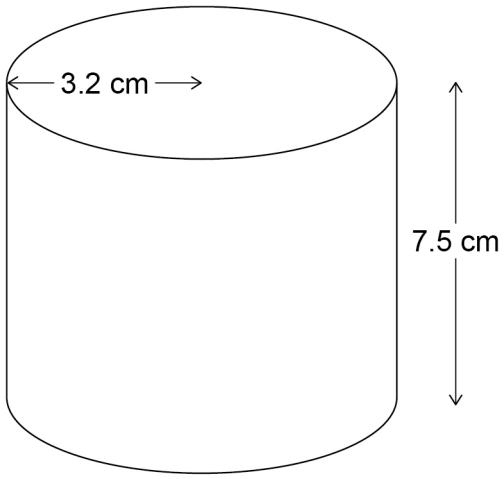
5 A cylinder has radius 3.2 cm and height 7.5 cm



Work out the volume of the cylinder.

[2 marks]

Area of base:

πr^2 $r = 3.2$ $\pi \times 3.2^2 = 32.17$

$32.17 \times 7.5 = 241.3$

Answer 241.3 cm^3

12

Turn over for Section B

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Section B

Answer **all** questions in the spaces provided.

6 **Cycle race**

Paul and Fran want to enter a 60 km cycle race.

6 (a) They look at the reviews of two races, A and B, from last year.
Each review gives a score out of 5 stars to show how good the race was.
Here is some information about the review scores for **Race A**.

Mean	4.1 stars
Median	4 stars
Range	3 stars

The frequency table shows the review scores of **Race B**.

Review Score (stars)	Frequency
1	0
2	1
3	1
4	4
5	6
	12

Score × fq
0
2
3
16
30
51

They enter the race with the higher average review score.

Which race do they enter?
You **must** show your working.

[4 marks]

$51 \div 12 = 4.25$

Race B since $4.25 > 4.1$

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6 (b) Fran wants to buy a new bike for the race.

She sees this offer.

Racing bike

£708 including VAT at 20%

SPECIAL OFFER

WE PAY THE VAT

Fran has £600 to spend.

Can she afford the bike?
You **must** show your working.

[3 marks]

708 = 120%.
(708 ÷ 120) x 100 = 590
Yes, She has £600
the bike costs £590

Question 6 continues on the next page

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6 (c) Paul and Fran start the race at the same time.

Fran cycles the 60 km at an average speed of 15 **miles** per hour.

Fran completes the race and waits for Paul to finish.

Paul finishes the race in 167 minutes.

Does Fran wait for **more than** 10 minutes?

Use 1 mile = 1.6 km

You **must** show your working.

[4 marks]

$15 \times 1.6 = 24$ km/h

$S = \frac{d}{t}$ $t = \frac{d}{S}$ $t = \frac{60}{24} = 2.5$ hours

2.5 hours = 150 mins

167 − 150 = 17 mins waited

Yes, She waits for 17 mins

11

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7 **Supermarket**

Lucas is going shopping at a supermarket.

7 (a) Lucas has a budget of £50 per week for food.
He has already spent £12.50 on takeaway meals.

What fraction of his budget does he have left?

[2 marks]

$50 - 12.50 = 37.50$

$\frac{37.50}{50} = \frac{3}{4}$

Answer $\frac{3}{4}$

Question 7 continues on the next page

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7 (b) Lucas buys a 450 g packet of biscuits.

He reads the label.

Sugar content	26.4 g per 100 g
Maximum recommended daily amount (MRDA) of sugar	30 g

Lucas eats 2 biscuits.

Work out the percentage of the MRDA of sugar in the 2 biscuits.

[4 marks]

$450 \div 36 = 12.5\text{g}$ per biscuit

$12.5 \times 2 = 25\text{g}$

$\frac{25}{100} = \frac{1}{4}$ $\frac{1}{4} \times 26.4 = 6.6\text{g}$

$\frac{6.6}{30} \times 100 = 22$

Answer 22 %

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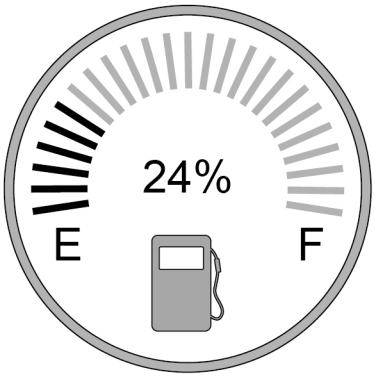
7 (c) Lucas looks at his car's petrol gauge and decides to fill up the petrol tank.



The petrol tank holds 70 litres when full.

Petrol costs 126.8p per litre.

How much does Lucas pay to fill up the tank?

[4 marks]

100 − 24 = 76% empty

0.76 × 70 = 53.2 Litres needed

53.2 × 126.8 = 6745.76p

= £67.46

Answer £ 67.46

10

Turn over ►

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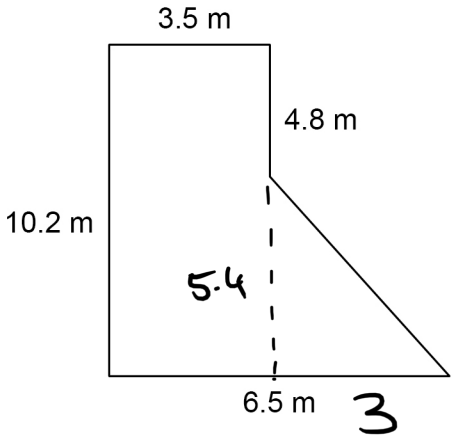
8 Driveway

Meg owns a company that builds concrete driveways.

8 (a) Here is a sketch of a plan of a driveway made from a rectangle and a triangle.



Not drawn accurately

Meg charges £120 per square metre to construct the driveway.

Work out the total amount she charges for the driveway.

[4 marks]

$6.5 - 3.5 = 3$

$10.2 - 4.8 = 5.4$

Rectangle:

$10.2 \times 3.5 = 35.7 m^2$

Triangle:

$\frac{1}{2} \times 5.4 \times 3 = 8.1 m^2$

total: $8.1 + 35.7 = 43.8 m^2$

$43.8 \times 120 = £5256$

Answer £ 5256

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8 (b) Meg promises the customer that the driveway will be constructed in 7 days.

Meg has 3 workers.

It would take the 3 workers 11 days to construct the driveway.

Work out the minimum number of **extra** workers Meg needs to employ.
Assume all workers work at the same rate.
You **must** show your working.

[4 marks]

3 × 11 = 33 days of work for one worker

33 ÷ 7 = 4.71 workers needed for 7 days.
Cant have 0.71 of worker, So need 5 total.
She has 3 so 5 − 3 = 2,
She needs 2 more

Answer 2

Question 8 continues on the next page

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8 (c) Meg paints a different driveway with a waterproof coating.

The driveway covers an area of 35.75 m^2

The coating is made by mixing sealant and water in the ratio 3 : 8

2 litres of the coating will cover 1 m^2 of driveway.

Sealant is sold in 1.5 litre bottles.

How many bottles of sealant does she need?

[5 marks]

35.75 x 2 = 71.5 Litres needed

3 + 8 = 11

71.5 ÷ 11 = 6.5

3 x 6.5 = 19.5 Litres of sealant needed

19.5 ÷ 1.5 = 13 bottles

Answer 13

13

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9 Apartment

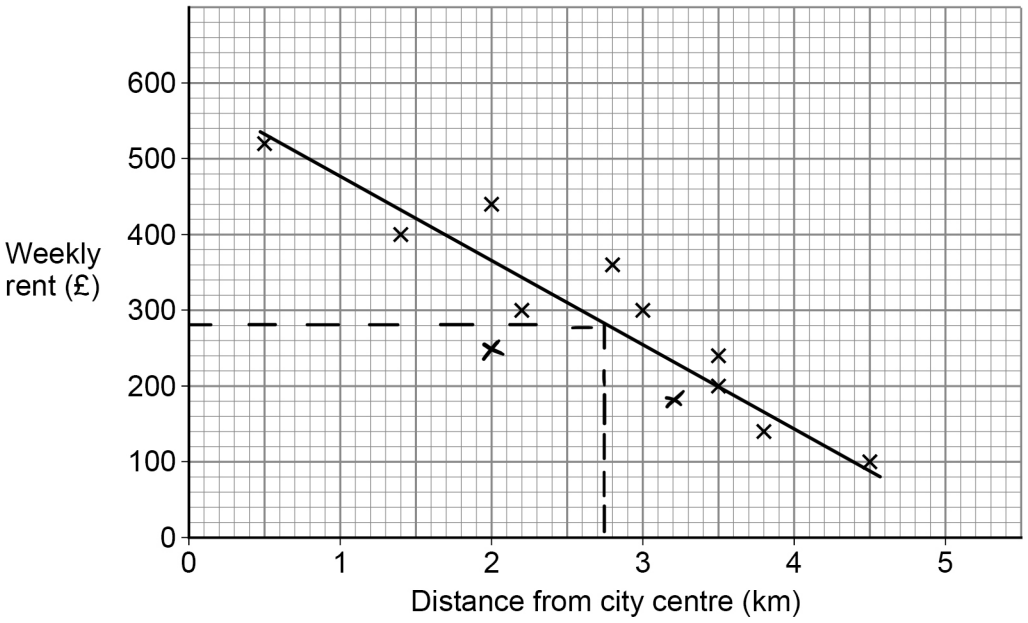
Pete wants to rent an apartment near Norwich city centre.

9 (a) He records information about 10 apartments on a scatter diagram.

The diagram shows

the distance from the city centre in km

the weekly rent in £



The table shows extra data about two other apartments.

Distance from city centre (km)	Weekly rent (£)
2	250
3.2	180

Pete rents an apartment for £280 per week.

Use the scatter diagram **with the extra data** to

estimate the distance from the city centre to the apartment.

You **must** show your working, which should be on the diagram.

[4 marks]

Answer 2.7

Question 9 continues on the next page

Turn over ►

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9 (b) Pete has a scale diagram of the living room in the apartment.

Pete wants to cover one wall with wallpaper.

The width of the wall on the scale drawing is 15.9 cm

The scale is 1 : 60

The wallpaper Pete wants

comes in rolls of width 0.53 m and length 10.05 m

costs £13.85 per roll.

The height of the room is 2.65 m

Pete cuts the rolls into lengths of 2.65 m

Work out the total cost of the rolls of wallpaper that Pete needs for the wall.

[6 marks]

60 × 15.9 = 954 cm

10.05 ÷ 2.65 = 3.8 0.53m = 53cm

3 full lengths per roll

954 ÷ 53 = 18 lengths needed

18 ÷ 3 = 6 rolls needed

6 × 13.85 = 83.10

Answer £ 83.10

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9 (c) Pete wants to hide the wires from his TV.

Wires can be hidden in plastic trunking.

Trunking can be cut to any length.

Pete needs three pieces of trunking measuring

$1\frac{1}{2}$ metres

$2\frac{1}{4}$ metres

90 cm

Pete has 15 feet of trunking.

Is this enough?

Use 1 foot = 12 inches

Use 1 inch = 2.5 cm

[4 marks]

15 x 12 = 180 inches

180 x 2.5 = 450 cm

$1\frac{1}{2}$ m = 150 cm $2\frac{1}{4}$ m = 225 cm

225 + 150 + 90 = 465 cm

No, he has 450 cm but needs 465 cm

14

END OF QUESTIONS

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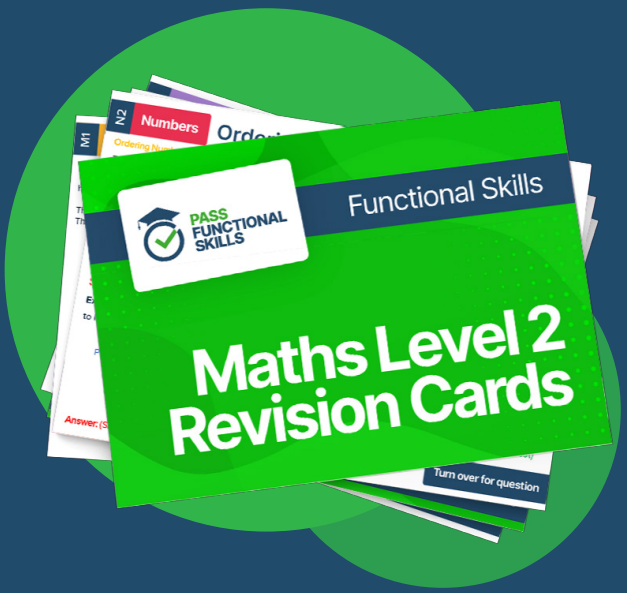

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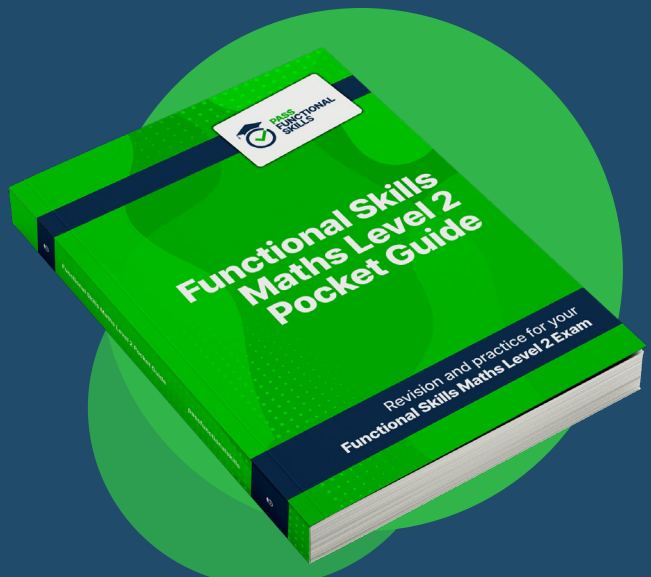

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