AQA

Please write clearly in block capitals.

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

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

GCSE MATHEMATICS

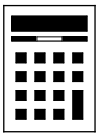
F

Foundation Tier Paper 2 Calculator

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- a calculator
- mathematical instruments
- the Formulae Sheet (enclosed).



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- 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.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26–27	
TOTAL	

Advice

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

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

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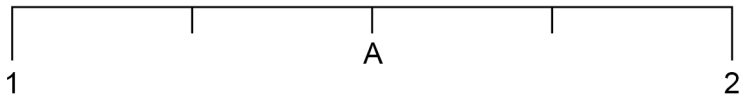
1 Here is a number line.



Which number is at A?

Circle your answer.

[1 mark]

1.2 1.4 1.5 1.8

2 Here is an expression $5a + 7b + 9c$

Which is the second term?

Circle your answer.

[1 mark]

a 7 $7b$ 9

3 How many hours are there in 5 days? $5 \times 24 = 120$

Circle your answer.

[1 mark]

35 120 150 300

Do not write outside the box

4 Which of these parts of a circle is a curve?

Circle your answer.

[1 mark]

circumference (1) diameter centre radius

5 (a) Write $1\frac{4}{9}$ as an improper fraction.

[1 mark]

$\frac{9}{9} + \frac{4}{9} = \frac{13}{9}$

Answer $\frac{13}{9}$ (1)

5 (b) Convert $\frac{7}{16}$ to a decimal.

[1 mark]

$7 \div 16 = 0.4375$

Answer 0.4375 (1)

5 (c) Round 2.84 to 1 decimal place.

[1 mark]

Answer 2.8 (1)

7

Do not write outside the box

6 A machine to clean carpets can be hired.

Machine hire
£25 per day

Cleaning fluid	
1-litre bottle	£10
2-litre bottle	£18

Rana wants to

hire the machine for 1 day

and

buy 5 litres of cleaning fluid.

5 x 1 litre = £50

1 x 2l + 3 x 1l = 18 + 3 x 10

= 18 + 30

= 48

Work out the **smallest** total amount she could pay.

[3 marks]

Machine hire = £25

Cleaning fluid = 2 x £18 + 1 x £10

= £36 + £10

= £46 (1)

Total = 25 + 46 (1)

= 71 (1)

Answer £ 71

Do not write outside the box

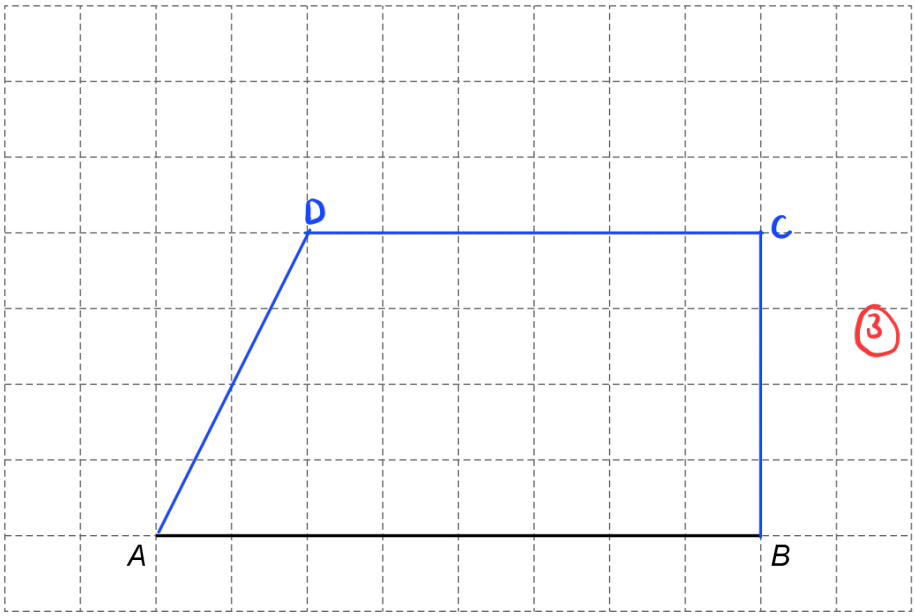
7 Quadrilateral *ABCD* has

- angle *ABC* = 90°
- *BC* = 4 cm
- *CD* is parallel to *BA*
- *CD* = 6 cm

Draw *ABCD* on the centimetre grid.

AB has been drawn for you.

[3 marks]



Turn over for the next question

6

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8 The masses of some puppies were recorded.

The smallest mass was 7 kilograms 200 grams.

The range of the masses was 650 grams.

What was the **largest** mass?

Give your answer in kilograms and grams.

[2 marks]

largest = 7 kg 200 g + 650 g (1)

= 7 kg 850 g (1)

Answer 7 kilograms 850 grams

9 (a) Ali revises each day for five days.

On each of the first **four** days he revises from 5 pm to 8 pm

On the fifth day he starts revising at 1 pm

He finishes when he has revised for a **total** of 18 hours for the five days.

What time does he finish on the fifth day?

[3 marks]

First four days : 4 × (8 − 5)

= 12 hours (1)

Fifth day : 18 − 12 = 6 hours (1)

1 pm + 6 hours = 7 pm (1)

Answer 7 pm

Do not write outside the box

9 (b) Sofia is revising for Maths.

She tries to work out $3 \times (4 + 2)$

Here is her working.

$$3 \times (4 + 2) = 12 + 3$$
$$= 15$$

What mistake has she made?

[1 mark]

It should be $3 \times 6 = 18$ since she needs to solve the calculation in the bracket first. (1)

Turn over for the next question

6

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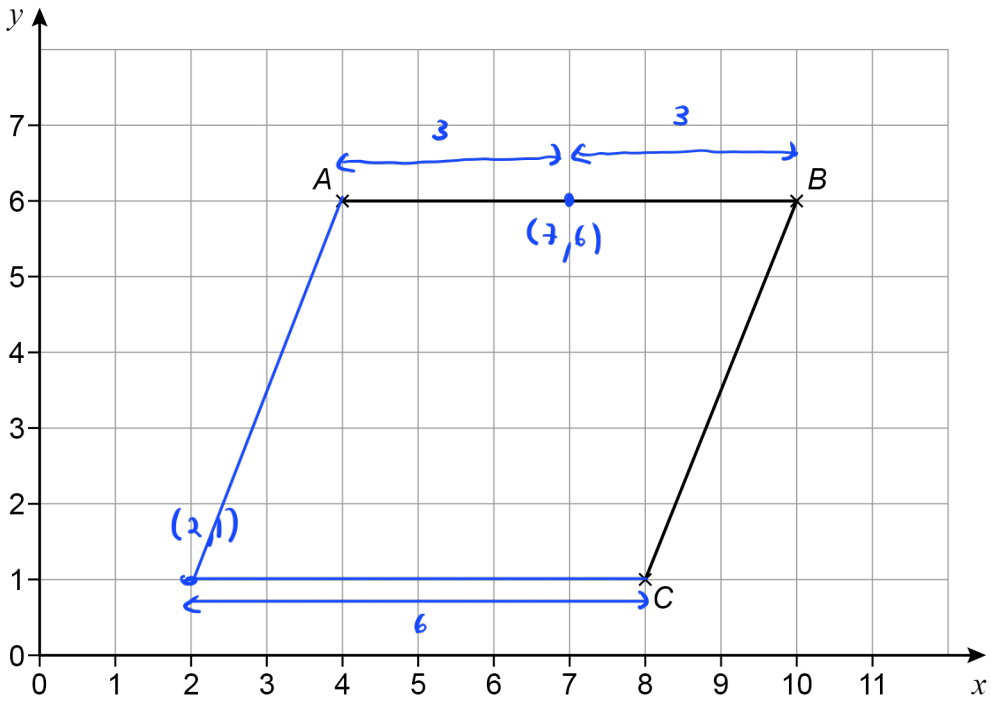
10 Lines *AB* and *BC* are shown.



10 (a) Write down the coordinates of *C*.

[1 mark]

Answer (8 , 1) (1)

10 (b) Write down the coordinates of the midpoint of *AB*.

[1 mark]

Answer (7 , 6) (1)

Do not write outside the box

10 (c) *D* is the point on the grid that makes *ABCD* a parallelogram.

Work out the coordinates of *D*.

[1 mark]

Answer (2 , 1) (1)

10 (d) Write down the equation of the line passing through *A* and *B*.

[1 mark]

Answer y = 6 (1)

Turn over for the next question

4

Do not write outside the box

11 Nihal has savings of £168

He uses $\frac{5}{7}$ of his savings to buy sports equipment.

11 (a) Assume that he will use $\frac{1}{3}$ of the **rest** of the money to buy a shirt.

How much of his savings, in £, will he have left?

[3 marks]

1st Balance : $\frac{2}{7} \times 168 = 48$ (1)

2nd balance : $\frac{2}{3} \times 48 = 32$ (1)

(1)

Answer £ 32

Do not write outside the box

11 (b) In fact, he uses **more** than $\frac{1}{3}$ of the rest of the money to buy a shirt.

What does this tell you about how much of his savings he has left?

Tick **one** box.

[1 mark]

- ☐ It is more than the answer to part (a)
- ☐ It is the same as the answer to part (a)
- ☑ It is less than the answer to part (a) (1)
- ☐ It is not possible to tell

Turn over for the next question

4

Do not write outside the box

12 Sue is working with 2-digit numbers.

She multiplies the digits together to get an answer.

For 63, she multiplies 6 by 3
so 63 gives an answer of 18

12 (a) Write down a different 2-digit number that gives an answer of 18

[1 mark]

Answer 92 (1)

12 (b) Write down a 2-digit number that gives an answer of 0

[1 mark]

Answer 20 (1)

12 (c) Write down a 2-digit number that gives an answer **greater** than 70

[1 mark]

Answer 98 (1)

Do not write outside the box

13 Steve and Molly each buy 480 tea bags.

Small packs	**Large packs**
80 tea bags for £1.90	160 tea bags for £3.25

Steve buys only small packs.

Molly buys only large packs.

In total, how much **more** than Molly does Steve pay?

[4 marks]

Steve : $\frac{480}{80} = 6$ (1)

$6 \times £1.90 = £11.40$ (1)

Molly : $\frac{480}{160} = 3$

$3 \times £3.25 = £9.75$ (1)

$£11.40 - £9.75 = £1.65$ (1)

Answer £ 1.65

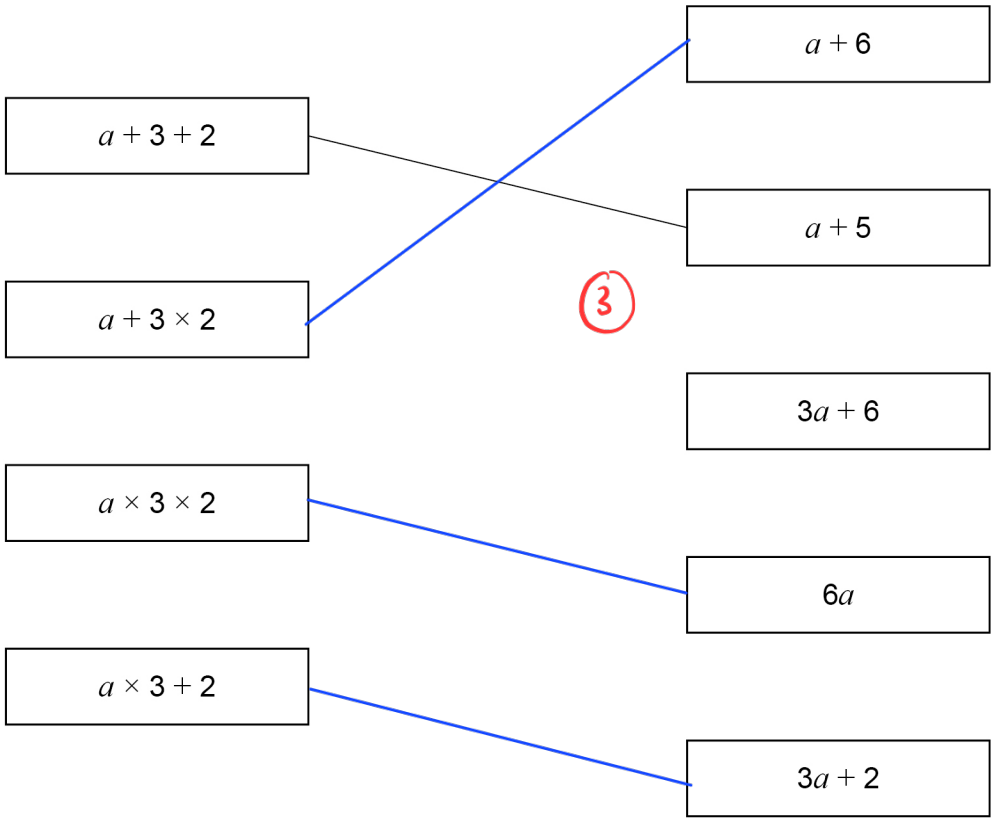
7

Do not write outside the box

14 Match each expression on the left with one on the right.

One has been done for you.

[3 marks]



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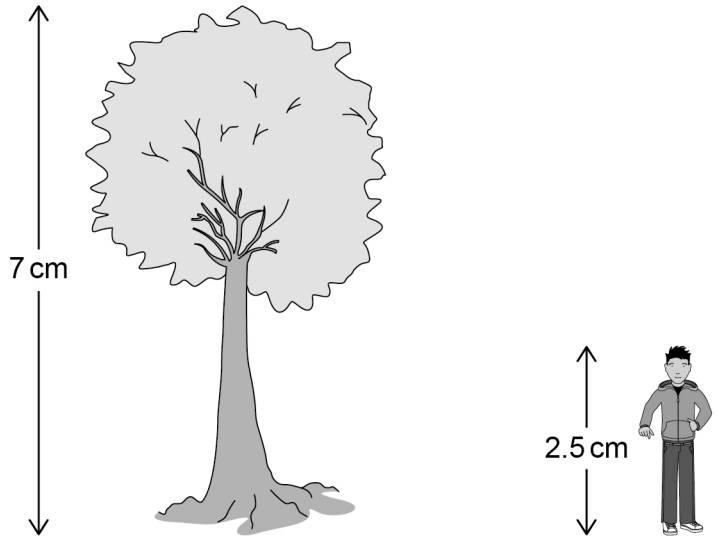
15 The scale drawing shows a tree and a student.



The actual height of the tree is 4.2 metres.

Work out the actual height of the student.

[3 marks]

$\frac{2.5}{7}$ (1) × 4.2 (1) = 1.5 (1)

Answer 1.5 m

6

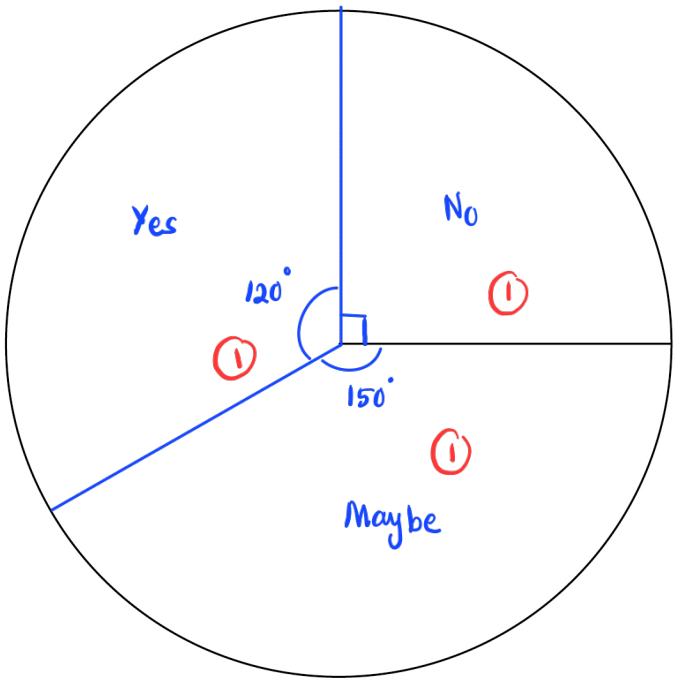
Do not write outside the box

16 60 people were asked if they would vote in an election.

- $\frac{1}{4}$ of the people said No
- 20 people said Yes
- The rest said Maybe

Draw and label a pie chart to show this information.

[3 marks]



No: $\frac{1}{4} \times 60 = 15$ $\quad \frac{15}{60} \times 360^\circ = 90^\circ$

Yes: 20 $\quad \frac{20}{60} \times 360^\circ = 120^\circ$

Maybe = 60 − 20 − 15

= 25 $\quad \frac{25}{60} \times 360^\circ = 150^\circ$

Do not write outside the box

17 (a) x is at least 7

Circle the correct inequality.

[1 mark]

$x < 7$ $\quad$ $x \leqslant 7$ $\quad$ $x > 7$ $\quad$ $x \geqslant 7$ (1)

17 (b) Multiply out $5c(2d + 1)$

[2 marks]

10 cd + 5c

Answer 10 cd + 5c (2)

17 (c) Factorise $21x + 28$ (÷7)

[1 mark]

7(3x + 4)

Answer 7(3x + 4) (1)

7

Turn over ►

Do not write outside the box

18 (a) The people at a party are either adults or children.

adults : children = 9 : 11

What percentage are adults?

[2 marks]

9 + 11 = 20

Adults : $\frac{9}{20}$ (1) × 100% (1)

= 45%

Answer 45 %

18 (b) The people at a different party are from Spain, France or Germany.

68% are from Spain

number from France = number from Germany

Work out number from Spain : number from France

Give your answer in the form n : 1

[3 marks]

100% − 68% = 32%

France = Germany = $\frac{32\%}{2}$ = 16% (1)

Spain : France = 68 : 16 (1) ÷ 16

= 4.25 : 1

Answer 4.25 (1) : 1

Do not write outside the box

19 (a) Circle the point that is on the line $4x + y = 7$

[1 mark]

(2, 1) (2, –1) (1, 2) (–1, 2)

$4(2) + (-1)$

$8 - 7 = 7$

19 (b) Write down the coordinates of the y-intercept of the line $y = 3x + 8$

[1 mark]

Answer (0 , 8)

19 (c) Work out the gradient of the line $2y = 10x$ $y = 5x$

[1 mark]

Answer 5

Turn over for the next question

8

Do not write outside the box

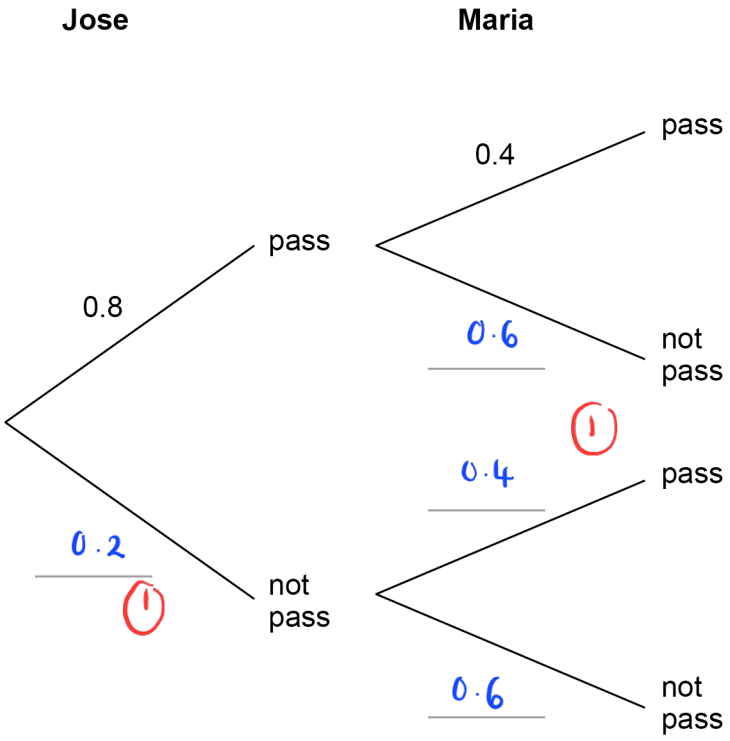
20 Jose and Maria each take a test.

The probability that Jose passes is 0.8

The probability that Maria passes is 0.4

20 (a) Complete the tree diagram.

[2 marks]



20 (b) Work out the probability that they **both** pass.

[1 mark]

$0.8 \times 0.4 = 0.32$

Answer 0.32 (1)

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21 Show that 2125 can be written as

a cube number **multiplied** by a prime number between 10 and 20

[2 marks]

prime number : 11, 13, 17, 19

2125 is only divisible by 17.

$2125 \div 17 = 125$

$\sqrt[3]{125} = 5$ (2)

$\therefore 5^3 \times 17 = 2125$

Turn over for the next question

5

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22 A school play takes place each day from Monday to Friday.

Here are the attendances on four of the days.

Monday	Tuesday	Wednesday	Thursday
72	83	88	97

For all **five** days, the mean attendance is 90

Work out the attendance on Friday.

[3 marks]

Total attendance = $90 \times 5 = 450$ (1)

Friday = $450 - (72 + 83 + 88 + 97)$

$= 450 - 340$ (1)

$= 110$ (1)

Answer 110

Do not write outside the box

23 Sam types a constant number of words per minute.
He takes 8 minutes to type a report of 416 words.

How long does it take him to type an essay of 1534 words?
Give your answer in minutes and seconds.

[3 marks]

$\frac{416}{8}$ = 52 words per minutes (1)

$\frac{1534}{52}$ = 29.5 minutes (1)

= 29 mins 30 seconds (1)

Answer 29 minutes 30 seconds

24 $4y = 5x$

Which statement is correct?
Tick **one** box.

$y = \frac{5}{4}x$

$x = \frac{4}{5}y$

[1 mark]

- ☐ y is 80% of x
- ☑ y is 125% of x (1)
- ☐ x is 20% of y
- ☐ x is 400% of y

7

Do not write outside the box

25 Rosie makes phone calls to try to sell broadband.

Today, she made 120 calls.

The table shows the results.

Result of call	Frequency
Not answered	33
Answered but sale not made	81
Answered and sale made	6

25 (a) Write down the relative frequency that a call was **not answered**.

[1 mark]

$\frac{33}{120}$ (1)

Answer _____

25 (b) During the **rest of the week**, Rosie will make 500 calls.

Using the results in the table, how many sales does she expect to make during the **rest of the week**?

[2 marks]

$\frac{6}{120} \times 500 = 25$ (1) (1)

Answer 25

Do not write outside the box

26 Harry and Ellie each bought a printer and a hard drive.

Here is some information about how much they paid.

	Printer	Hard drive
Harry	£80	£25
Ellie	10% less than Harry	20% more than Harry

Ellie says,

"In total, I paid more than Harry because 20% is greater than 10%"

Is she correct?

Tick a box.

Yes ☐ No ☑ (1)

Show calculations to support your answer.

[2 marks]

Ellie :

printer : $\frac{90}{100} \times 80 = 72$

hard drive : $\frac{120}{100} \times 25 = 30$

Total : $72 + 30 = 102$

(1)

Harry : $80 + 25 = 105$

5

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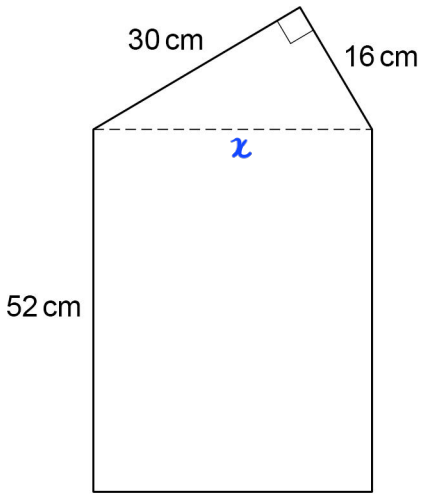
27 A shape is made by joining a right-angled triangle to a rectangle.



Not drawn accurately

Work out the area of the shape.

[5 marks]

$x^2 = 30^2 + 16^2$

$= 900 + 256$ (1)

$= 1156$

$x = \sqrt{1156} = 34$ (1)

Area of triangle : $\frac{1}{2} \times 30 \times 16 = 240$ (1)

Area of rectangle : $52 \times 34 = 1768$ (1)

Total : $240 + 1768 = 2008$ (1)

Answer 2008 cm^2

Do not write outside the box

28 Solve $5(2x - 1) = 6x + 9$

[3 marks]

(1)
$10x - 5 = 6x + 9$

$10x - 6x = 9 + 5$ (1)

$4x = 14$

$x = \frac{14}{4} = 3.5$ (1)

$x =$ 3.5

END OF QUESTIONS

8

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