GCSE

WJEC CBAC

4370/04

MATHEMATICS – LINEAR
PAPER 2
FOUNDATION TIER

A.M. WEDNESDAY, 13 June 2012

$1\frac{3}{4}$ hours

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1	6	
2	4	
3	4	
4	9	
5	5	
6	7	
7	9	
8	6	
9	4	
10	4	
11	6	
12	7	
13	13	
14	9	
15	3	
16	4	
TOTAL MARK		

ADDITIONAL MATERIALS

A calculator will be required for this paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

Write your name, centre number and candidate number in the spaces at the top of this page.

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

If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

Take π as 3·14 or use the π button on your calculator.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **13**(*a*).
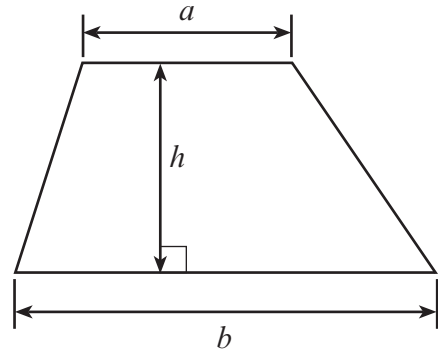
Formula List

Area of trapezium = $\frac{1}{2}(a + b)h$

Volume of prism = area of cross-section × length
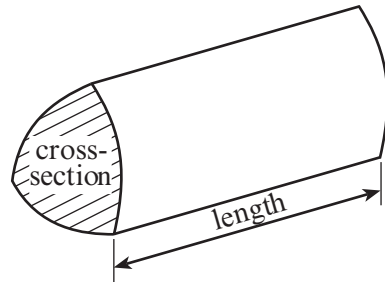
1. *(a)* Theo orders some clothes from an online catalogue.
He buys 4 pairs of jeans, 5 shirts, 8 packs of socks and 2 pairs of trainers.
Complete the following table to show his bill for these items.

Item	Cost (£)
4 pairs of jeans @ £12.33 per pair	49.32
5 shirts @ £7.62 each	
8 packs of socks @ £3.75 per pack	
2 pairs of trainers @ £25.99 per pair	
Total	

[4]

(b) The site gives a 5% discount.
How much discount does Theo get?

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....

....

[2]

2. Write down the metric unit **best** used to measure

the length of a hockey pitch, ...

the capacity of a fuel tank of a car, ...

the distance from Paris to Rome, ...

the weight of a large dog. ....

[4]

3. *(a)*
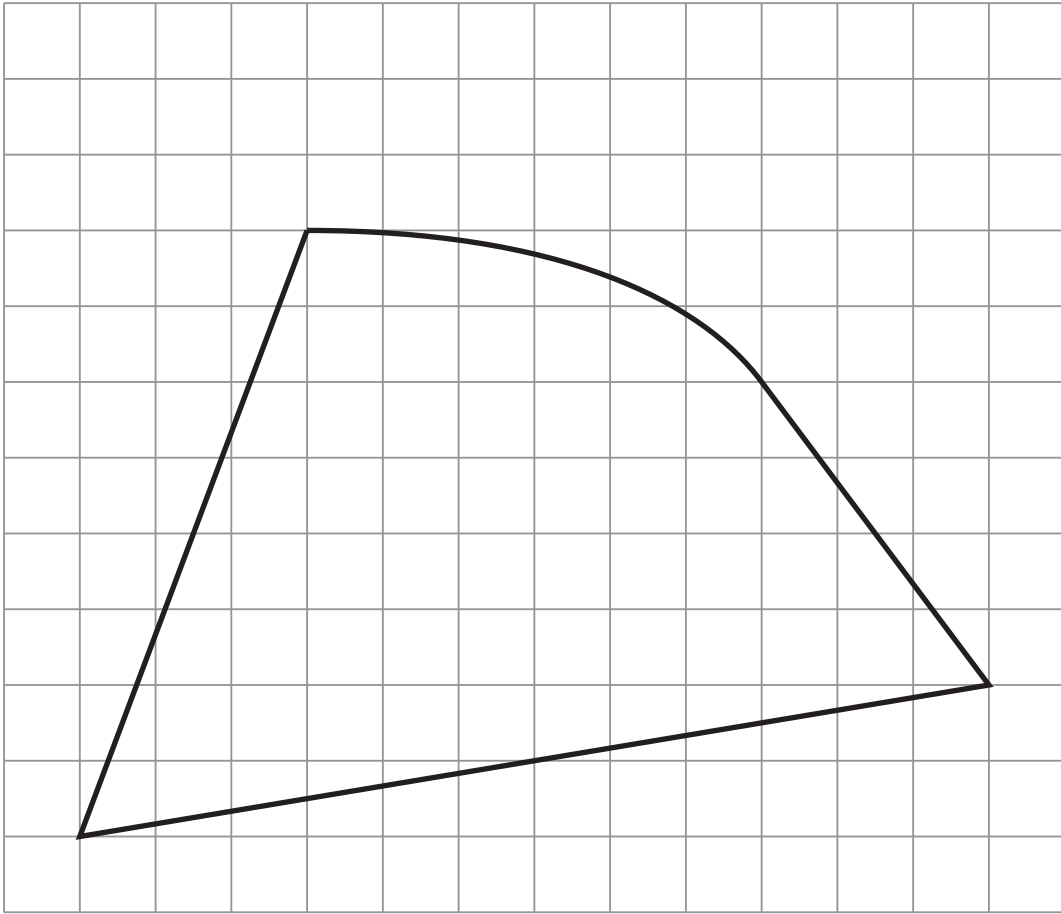
The above shape has been drawn on a centimetre square grid.
By counting squares, estimate the area of the above shape.

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Area of the shape = ... cm^2

[2]
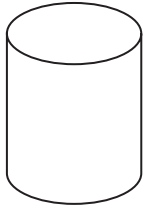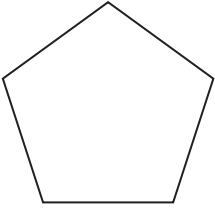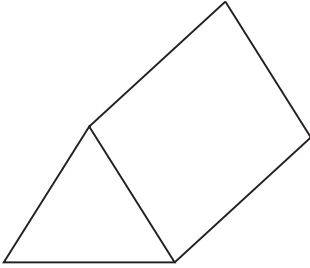
(b) Complete the following figure so that it is symmetrical about the line *PQ*.

[2]

Turn over.

4. *(a)* Write down the special name of each of the following figures.

[3]

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	....

(4370-04)

(b)   Write down the special name of the straight line shown in each of the following diagrams.

[3]

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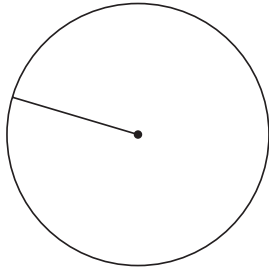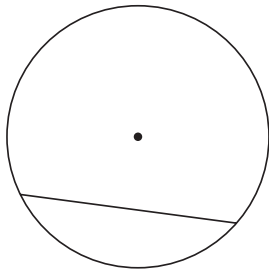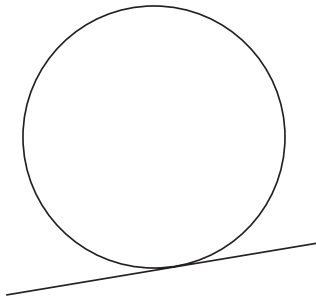
(c)   Draw all the lines of symmetry on each of the following patterns.

[3]

(i)

(ii)

(4370-04)   **Turn over.**
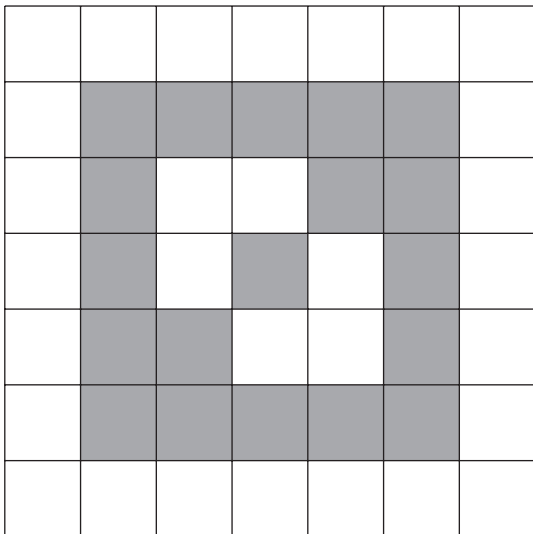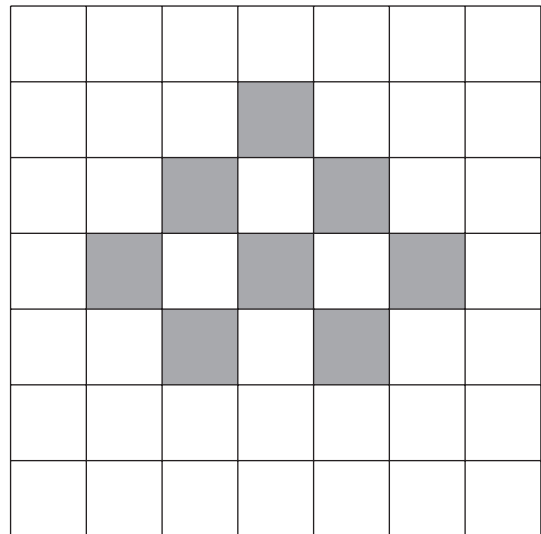
5. *(a)* Draw a circle around all of the following fractions that are equal to 0·4.

$$\frac{10}{25} \qquad \frac{1}{4} \qquad \frac{4}{15} \qquad \frac{4}{10} \qquad \frac{5}{20}$$

[2]

(b) Shade 25% of the following figure.
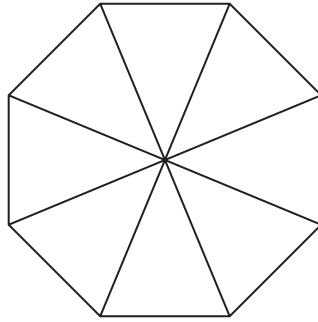
[1]

(c) What fraction of the following shape is shaded?
Give your answer in its simplest form.

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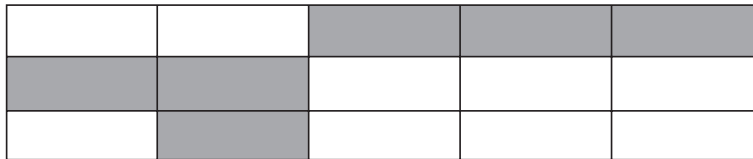
[2]

6. *(a)* Dean thinks of a number.
He multiplies his number by 4 and subtracts 12.
The answer he gets is 20.
What number did Dean think of?

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[2]

(b) Solve $x - 7 = 4$.

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[1]

(c) The packages **A** and **B** balance as shown in the diagrams below.
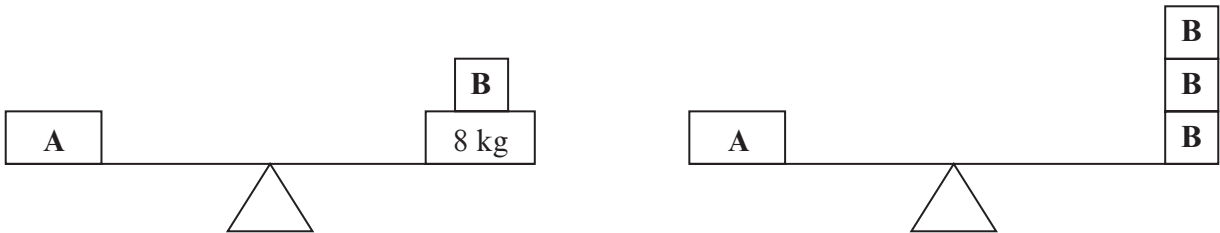
Find the weight of package **A** and the weight of package **B**.

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....

Weight of package **A** = ...kg   Weight of package **B** = ...kg

[4]

7. *(a)* Describe **in words** the rule for continuing the following sequence.

2, 8, 32, 128, ...

Rule: ....

....

[1]

(b) The rule connecting *T* and *V* is $T = 75 - 6V$.
Find the value of *T* when $V = 8$.

....

....

[2]

(c) (i) Petrol costs £*x* per litre. Write down, in terms of *x,* the cost of 45 litres.

....

[1]

(ii) A car is *y* years old. Another car is 3 years younger. Write down, in terms of *y,* the age of the younger car.

....

[1]

(d) Calculate $\frac{2}{7}$ of 28.

....

....

[2]

(e) Wendy earns £1200 in her part-time job. She receives a pay rise of 4%.
How much is the pay rise in pounds?

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....

[2]

8. The number of points scored by each of eight teams in a quiz was as follows:

<div align="center">

80   59   73   45   79   59   35   62

</div>

(a) Find the range of the number of points scored.

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[1]

(b) Find the mean number of points scored.

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[3]

(c) Find the median of the number of points scored.

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[2]

9. Louise and Tim went on holiday to a camp site in France.

(a) They changed £1200 into euros when the exchange rate was £1 = 1.19 euros.
How many euros did they receive?

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[2]

(b) Whilst on holiday they went on a day's outing which cost 404.60 euros.
What was the cost of the outing in pounds?

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[2]

(4370-04)

10. The diagram shows six identical circles and six identical squares inside a rectangle $ABCD$.
The diameter of each circle is equal to the length of a side of each square.
Each square has an area of $25\,\text{cm}^2$.
Find the perimeter of the rectangle $ABCD$.

A $\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad$ B

D $\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad$ C
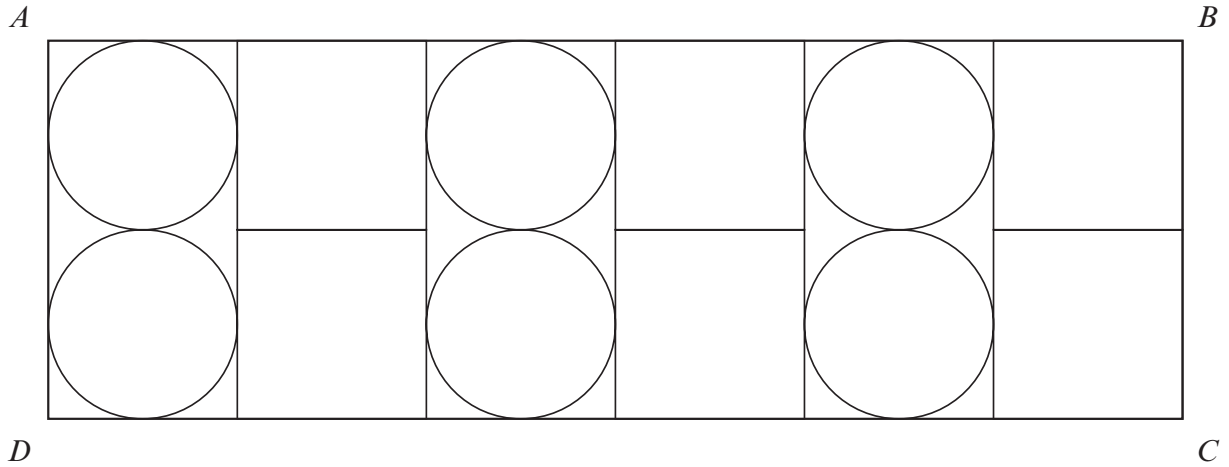
Diagram not drawn to scale

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[4]

(4370-04) **Turn over.**

11. *(a)* In an election for a head boy, Andrew received 69 votes, Barry received 30 votes and Kevin received 51 votes.
What percentage of the votes did Andrew receive?

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[2]

(b) The total cost of 6 copies of a magazine and 4 copies of a journal is £29.04.
The magazines cost £3.12 each.
Find the cost of one journal.

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[4]

(4370-04)

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ON THIS PAGE**

(4370-04)

Turn over.

12. *(a)* Using a ruler and a pair of compasses, construct an angle of 60° at the point *A* on the line below.

[2]

A ───────────────────────────

(b) Using a ruler and a pair of compasses, construct the perpendicular bisector of the line *PQ*.

[2]

P ───────────────────────── *Q*

(c)   Find the size of the angle marked *x*.

Diagram not drawn to scale

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$x =$ ....°

[3]

13. *(a)* *You will be assessed on the quality of your written communication in this part of the question.*

Valley Water Company measures the water used by a household in cubic metres.
There is a quarterly standing charge of £7.45.
The first 25 cubic metres of water used are charged at a rate of 93 pence per cubic metre.
All further water used is charged at the rate of 132 pence per cubic metre.

Calculate the quarterly water bill for a household using 46 cubic metres of water.

[6]

(b) A different water company, Trevi Water, has a different scale of charges.

> Trevi Water:
> - Quarterly standing charge £4
> - First 10 cubic metres per quarter at £1.50 per cubic metre
> - All further water charged at £2 per cubic metre

Write down, in its simplest form, an expression for the quarterly bill in pounds for a Trevi Water customer who uses x cubic metres of water, where $x > 10$.

[4]

(c) Mr and Mrs Alston recycle the water from their bath and washing machine to use in their garden.
Their meter reading, in cubic metres, on 1ˢᵗ April was 1678 and on 30ᵗʰ June it was 1702.
They recycled 8 cubic metres of the water used between 1ˢᵗ April and 30ᵗʰ June.
Find the percentage of the water that they recycled in the quarter.

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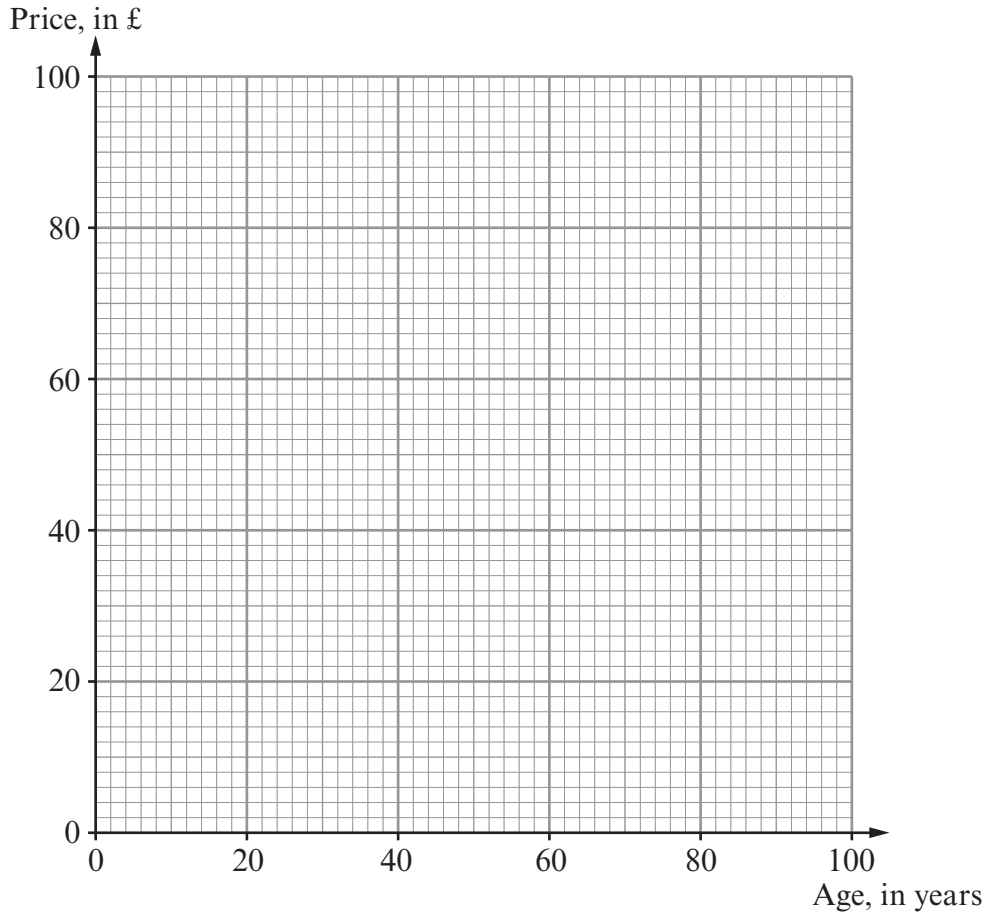
[3]

14. *(a)* The age and price of each of 10 chairs in an antique shop are recorded in the table.

Age, in years	26	40	70	50	46	80	66	64	70	32
Price, in £	100	60	80	70	50	40	20	50	50	30

(i) Draw a scatter diagram to display these ages and prices.

[2]

Price, in £

(ii) Write down the age and price of the oldest chair.

Age .... years

Price £ ....

[2]

(iii) Does the scatter diagram indicate that there is a correlation between the age and price of the chairs? You must give a reason for your answer.

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[1]

(b)   A leather sofa costs £2400.
Each year, the value of furniture depreciates by 18% of its value at the start of the year.
At the end of two years by how much has the value of the leather sofa depreciated?
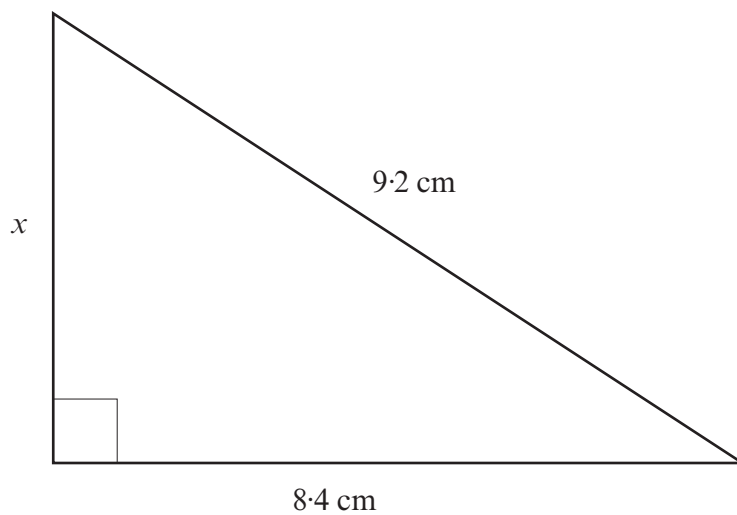
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[4]

15.

$9{\cdot}2$ cm

x

$8{\cdot}4$ cm

Diagram not drawn to scale

Calculate the length of the side marked x.

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[3]

16. Concrete blocks in the shape of cuboids are made using cement, sharp sand, gravel and water. A builder's yard offers customers use of their Concrete Quantity Calculator.

Customers enter the length, width and depth of the block of concrete they want to make. The calculator then works out the quantities of cement, sharp sand, gravel and water needed.

One customer enters her measurements, length 0·5 m, width 0·2 m and depth 0·3 m for the concrete she wants to make. This is what the Concrete Quantity Calculator shows:

Concrete Quantity Calculator			
Block dimensions	Length 0·5 metres	Width 0·2 metres	Depth 0·3 metres
	Cement	**10** kg	
	Sharp sand	**18** kg	
	Gravel	**36** kg	
	Water	**5** litres	

Complete the Concrete Quantity Calculator for another customer who wants to make a block of the same type of concrete, measuring 0·6 m by 0·4 m by 0·2 m.

Concrete Quantity Calculator			
Block dimensions	Length 0·6 metres	Width 0·4 metres	Depth 0·2 metres
	Cement	**16** kg	
	Sharp sand	.... kg	
	Gravel	.... kg	
	Water	.... litres	

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[4]

(4370-04)

Question number	Additional page, if required. Write the question numbers in the left-hand margin	Examiner only