

Mr Chapman Maths



'Last Third' Questions
With Mark Scheme Hints

This paper contains questions that are in the last third of marks of a
Mock GCSE Exam paper (**Mock Set 2 Spring 2017 Paper 3F**)

At the end of each question there are hints to where the marks are
awarded on the mark scheme - you might find it useful to use these
hints to help you structure your solutions.

Name: _____

Teacher: _____

Question 1

Solve the simultaneous equations

$$2x + 3y = 10$$

$$4x - y = -1$$

.....
(3 marks)

M1	For matching a variable and eliminating by either adding or subtracting the equations.
M1	For substituting a value for x or y into one of the original equations in order to find the other.
A1	Correct answer.

Question 2

A is the point with coordinates $(2,10)$

B is the point with coordinates $(5, d)$

The gradient of the line AB is 4

Work out the value of d .

$d = \dots\dots\dots$

(3 marks)

P1	Process to use the gradient formula.
P1	Process to rearrange the equation to solve for d .
A1	Correct answer.

Question 3

Sophia pays £222 for a plane ticket.
She also pays 100 euros airport tax.

The exchange rate is £1 = 1.38 euros.

What percentage of the total cost of the ticket and the airport tax does Sophia pay for the airport tax?

Give your answer correct to 1 decimal place.

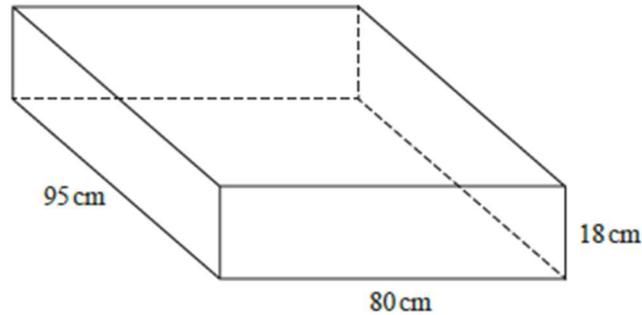
..... %

(3 marks)

P1	Process to use the conversion rate (either changing Euros into £ or the other way round).
P1	Process to find the percentage Sophia pays for airport tax.
A1	Correct answer.

Question 4

A sofa has 6 identical cushions.
Each cushion is a cuboid 18 cm by 80 cm by 95 cm.



The cushions are covered with a protective spray.
The protective spray is in cans.
The label on each can has this information.

Spray in this can covers $4m^2$

(a) Work out how many cans are needed to cover the 6 cushions with protective spray.

..... cans

(5 marks)

P1	Unit conversion into metres.
P1	Find the area of at least 2 different faces.
P1	Find the total surface area of one cushion.
P1	For multiplying your total surface area by 6 and dividing by 4.
A1	Correct answer.

The information on each label is inaccurate.
 The spray in each can covers 10% more than $4m^2$

(b) How will this affect the number of cans needed for the 6 cushions?
 You must show how you get your answer.

(2 marks)

P1	Show that if you increase the spray by 10% that it changes the number of cans required.
C1	For a written statement describing what you have worked out.

Question 5

$$a = \begin{pmatrix} 1 \\ 4 \end{pmatrix} \text{ and } b = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$$

a) Write down as a column vector $a + b$

.....

(1 mark)

B1	Correct answer
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b) Write down as a column vector $2a + 3b$

.....

(2 marks)

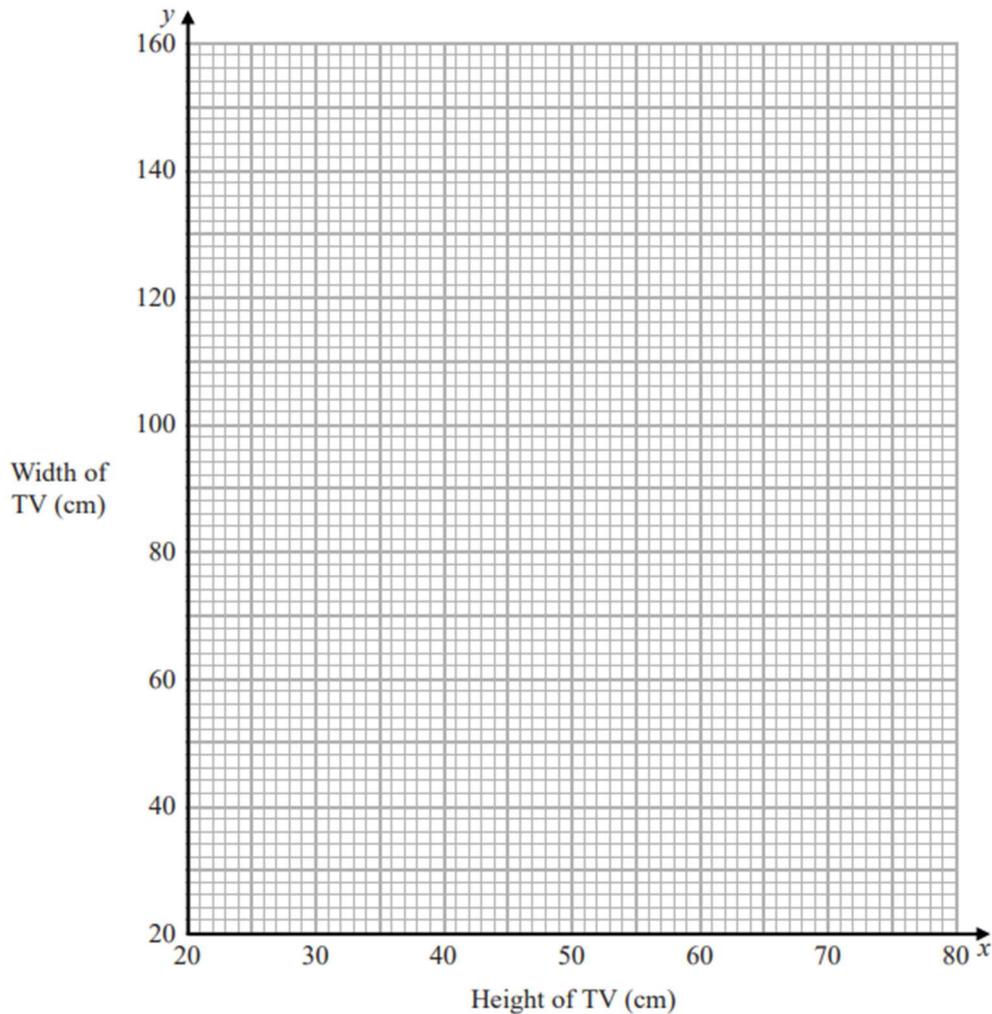
M1	For either multiplying either a by 2 or b by 3
A1	Correct Answer

Question 6

The height (x cm) and the width (y cm) of TVs are in the ratio 9:16.

(a) Use this information to draw a graph to show the relationship between the height and the width of TVs.

Use values of x from 20 to 80



(2 marks)

M1	For plotting at least two points of a line you intend to draw.
C1	For drawing a correct line

Another TV has a width of 90 cm.

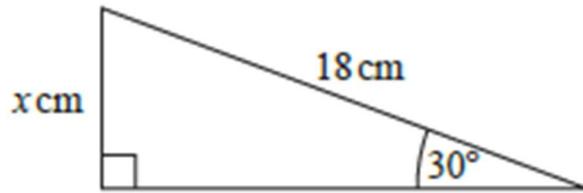
(b) Use your graph to work out the height of this TV.

..... cm

(1 mark)

B1	For a reasonable correct answer using the line you have drawn.
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Question 7



Work out the value of x .

$x = \dots\dots\dots \text{ cm}$

(2 marks)

M1	For a correct equation involving the correct trig ratio.
A1	For a correct answer.

Question 8

In a sale, normal prices are reduced by 17%.
The normal price of a washing machine is reduced by £42.50

Work out the sale price of the washing machine.

£ $\dots\dots\dots$

(3 marks)

M1	For a correct first first step to find another percentage e.g. 1%.
M1	For a fully correct method to find the sale price.
A1	For a correct answer.

Question 9

$$p^2 \times p^n = p^6$$

Find the value of n .

$n = \dots\dots\dots$

(1 mark)

B1	For a correct answer.
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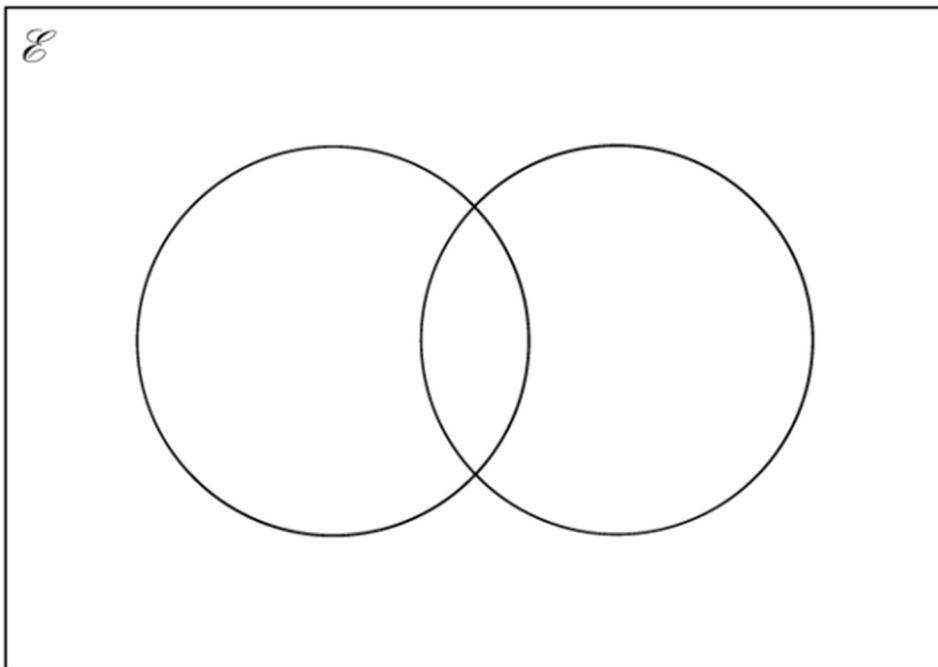
Question 10

$$\xi = \{1,2,3,4,5,6,7,8,9,10,11,12,13\}$$

$$A = \{\text{Multiples of 3}\}$$

$$B = \{\text{Even numbers}\}$$

Complete the Venn Diagram for this information.



B1	For labelling the circle
M1	For correct numbers in at least one region
M1	For correct numbers in at least two regions
A1	For a fully correct answer