



**Rewarding Learning**

**General Certificate of Secondary Education  
2020**

Centre Number

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Candidate Number

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## Mathematics

Unit M1

**(With calculator)**



Foundation Tier

## PRACTICE PAPER

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### TIME

1 hour 45 minutes

### INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Write your answers in the spaces provided in the question paper.

Complete in blue or black ink only. **Do not write in pencil or with a gel pen.**

Answer **all twenty-nine** questions.

Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

You can use a calculator for this paper.

### INFORMATION FOR CANDIDATES

The total mark for this paper is 100

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

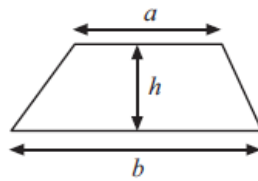
Functional Elements will be assessed in this paper.

You should have a ruler, compasses and protractor.

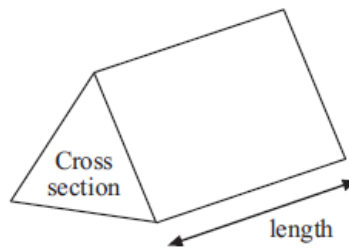
The Formula Sheet is on page 2.

## Formula Sheet

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



Volume of prism = area of cross section  $\times$  length



1 The two-way table shows some information about the members of a gym.

	Men	Women	TOTAL
Married		8	19
Single			14
TOTAL		12	

(a) How many married women are members of the gym?

Answer \_\_\_\_\_ [1]

(b) How many people are members of the gym?

Answer \_\_\_\_\_ [1]

(c) How many **more** single men are there than single women members of the gym?

Answer \_\_\_\_\_ [1]

2 (a) Draw a circle with diameter 8 cm in the space below.

(b) Draw and label on the circle

(i) a radius,

(ii) a chord.

[2]

3 Carly buys 6 chocolate bars costing 84p each.

She also buys 7 drinks costing 55p each.

She pays with a £10 note.

Work out her change in £

Answer £\_\_\_\_\_ [4]

4 Quinn asked each pupil in two classes in his school to choose their favourite sport.

There were 24 pupils in one class and 27 in the other.

He recorded the data in a frequency table and drew a bar chart.

Below is part of Quinn's frequency table.

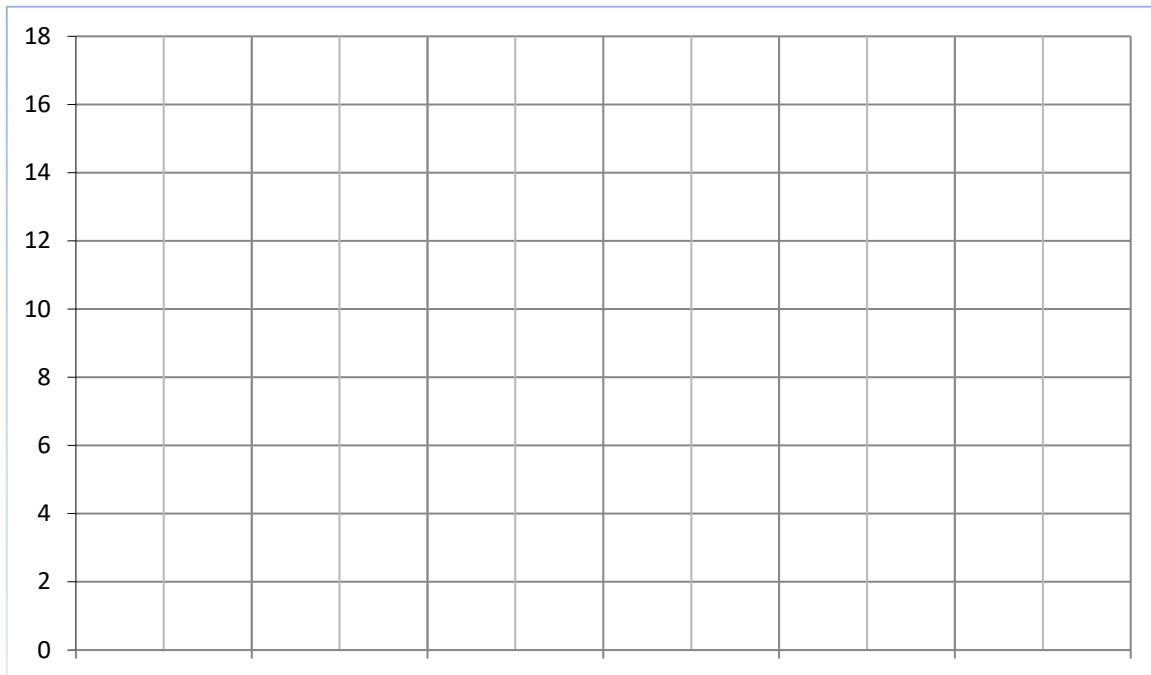
<b>Favourite Sport</b>	<b>Frequency</b>
Football	17
Rugby	8
Cricket	5
Hurling	12
Tennis	

(a) Complete the frequency column in Quinn's table.

[1]

Part of Quinn's bar chart is shown below.

(b) Complete the bar chart.



[3]

(c) Rory looked at the bar chart and said Quinn's school must be a boys' school.

Do you think he is correct? Give a reason.

\_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

[1]

5 The table below shows the scores of 15 pupils in a spelling test.

3	4	4	5	5
5	6	6	7	7
8	8	9	10	10

(a) What is the modal score?

Answer \_\_\_\_\_ [1]

(b) What is the median score?

Answer \_\_\_\_\_ [1]

6 (a) Write 0.36 as a percentage.

Answer \_\_\_\_\_ % [1]

(b) Write  $4\frac{1}{2}\%$  as a decimal.

Answer \_\_\_\_\_ [1]

(c) There were 200 passengers on a boat.

There were 80 male passengers.

There were 35 men passengers.

There were 20 **more** women than girl passengers.

(i) Write the fraction of men passengers on the boat in its **simplest form** .

Answer \_\_\_\_\_ [1]

(ii) Work out how many women passengers were on the boat.

Answer \_\_\_\_\_ [3]

**7** Michelle cut 6 equal lengths of 11.7 cm from a piece of wood.

The wood was now 7.8 cm long.

How long was it originally?

Answer \_\_\_\_\_ cm [2]

**8** The table below shows some of the temperatures in °C in Belfast on the first day of each month from January to September.

Month	1 Jan	1 Feb	1 Mar	1 Apr	1 May	1 June	1 July	1 Aug	1 Sep
Temperature (°C)	4	2	3	6	7	9	11		9

**(a)** Work out the mean of the temperatures in the table from 1 January to 1 July.

Answer \_\_\_\_\_ °C [2]

**(b)** The range of the temperatures in the table from 1 January to 1 September is 14°C.

Work out the temperature on 1 August.

Answer \_\_\_\_\_ °C [2]

9

INPUT



Multiply by 6 and Add 3



OUTPUT

(a) What is the OUTPUT when the INPUT is 5?

Answer \_\_\_\_\_ [1]

(b) What is the INPUT when the OUTPUT is 51?

Answer \_\_\_\_\_ [2]

10 (a) A box is in the shape of a cuboid of length 12.8 cm, width 10 cm and height 4 cm.

Work out its volume.

Answer \_\_\_\_\_ cm<sup>3</sup> [2]

(b) This box is replaced by a cube with the same volume as the cuboid.

Calculate the length of each side of the cube.

Answer \_\_\_\_\_ cm [2]



**11** The cash price of a television is £790

It can be bought on credit by paying a deposit of 20% of the cash price and equal monthly payments of £21.75 for 3 years.

How much **more** is paid for the television when it is bought on credit?

Answer £\_\_\_\_\_ [5]

**12 (a)** Simplify  $7x - x + 5x$

Answer \_\_\_\_\_ [1]

**(b)** Solve the equations

**(i)**  $7x = 42$

Answer  $x =$  \_\_\_\_\_ [1]

**(ii)**  $8 - y = 3$

Answer  $y =$  \_\_\_\_\_ [1]

**13 (a)** A machine cuts squares of length 8 cm from a plastic sheet.

Work out the

**(i)** perimeter of each square,

Answer \_\_\_\_\_ cm [1]

**(ii)** area of each square.

Answer \_\_\_\_\_ cm<sup>2</sup>[1]

**(b)** Another machine cuts out rectangles of length 6 cm and area 27 cm<sup>2</sup>

Work out the perimeter of each rectangle.

Answer \_\_\_\_\_ cm [4]

**14** In a greengrocer's shop, oranges cost £1.20 per kg.

Fionna buys 1.4 kg of oranges.

She also buys 0.7 kg of pears.

The total cost is £2.87

Work out the price **per kg** for the pears.

Answer £\_\_\_\_\_ [4]

**15** Sean won £1200 in a competition.

He gave  $\frac{1}{3}$  of his winnings to his mum and  $\frac{4}{15}$  to his sister.

He kept the rest of his winnings.

What fraction of his winnings did he keep?

Give your answer in its simplest form.

Answer \_\_\_\_\_ [4]

**16**

$$V = 4x - 3y$$

Work out the value of  $V$  when  $x = 5$  and  $y = 2$

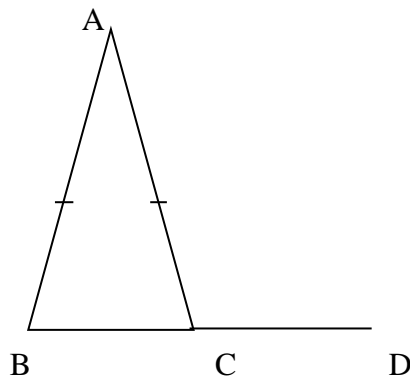
Answer  $V =$  \_\_\_\_\_ [2]

17 Complete the following table for the equation  $y = 7 - 3x$

$x$	-1	1	
$y = 7 - 3x$		4	-2

[3]

18



**Diagram not drawn accurately**

ABC is an isosceles triangle with  $AB = AC$ .

Angle  $BAC = 28^\circ$

Work out the size of angle  $ACD$ .

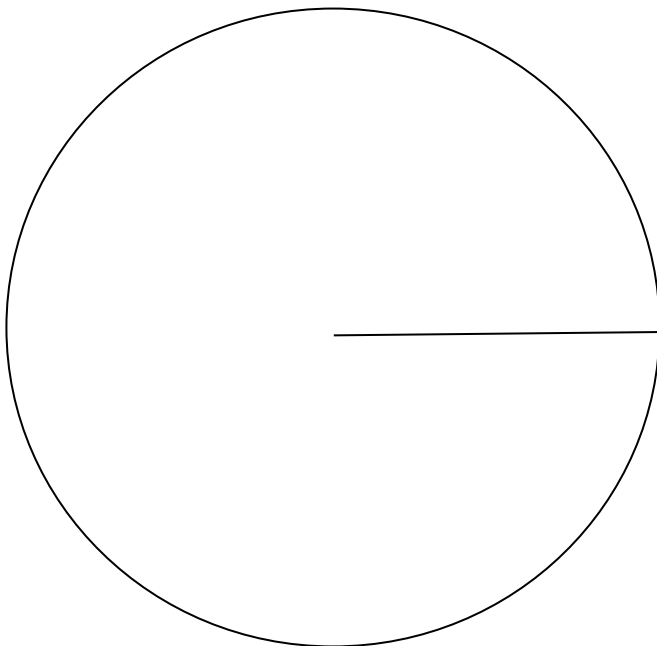
Answer \_\_\_\_\_  $^\circ$  [3]

19 Lilian recorded how much was spent in her shop on four different items one week.

The results are shown below.

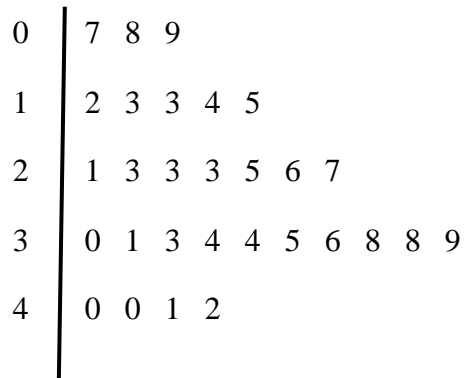
<b>ITEMS</b>	<b>PERCENTAGE SPENT</b>	<b>DEGREES</b>
Food	60%	
Pet Supplies	5%	
Household	20%	
Personal	15%	

Draw an accurate pie chart below to show this information.



20 Paddy recorded the widths of leaves.

The stem and leaf diagram shows the results.



key 0 | 7 means 0.7 cm

Find

(a) the range of the widths,

Answer \_\_\_\_\_ cm [1]

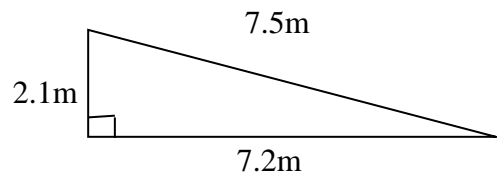
(b) the median of the widths.

Answer \_\_\_\_\_ cm [1]

21 A garden plot in the shape of a right angled triangle is sown with grass.

Find the area of grass sown.

Include units in your answer.



**Diagram not drawn accurately**

Answer \_\_\_\_\_ [3]

22 The mean weight of 12 eggs was 1.82 ounces.

Work out their total weight.

Answer \_\_\_\_\_ ounces [2]

23 A car travels 168 miles in 3hours 30 minutes.

Work out its average speed in miles per hour (mph).

Answer \_\_\_\_\_ mph [2]

**24** A shopkeeper bought a box of 24 calculators for £56

What price should he sell each of them at to make a profit of 20%?

Answer £\_\_\_\_\_ [4]

**25** Liam's pay last year was £250 per week.

He received a pay rise this year.

His pay this year is £258.75 per week.

Work out his percentage pay rise.

Answer \_\_\_\_\_ % [3]

**26** A closed box is in the shape of a cube with sides of length 9.6 cm.

A circular hole of diameter 8cm is cut in the top of the box.

Work out the total surface area of the box now.

Answer \_\_\_\_\_ cm<sup>2</sup> [4]



27 (a) Work out  $x(7x + 3)$

Answer \_\_\_\_\_ [1]

(b) Factorise  $18x - 12y$

Answer \_\_\_\_\_ [1]

28 There were 70 young people at a summer camp.

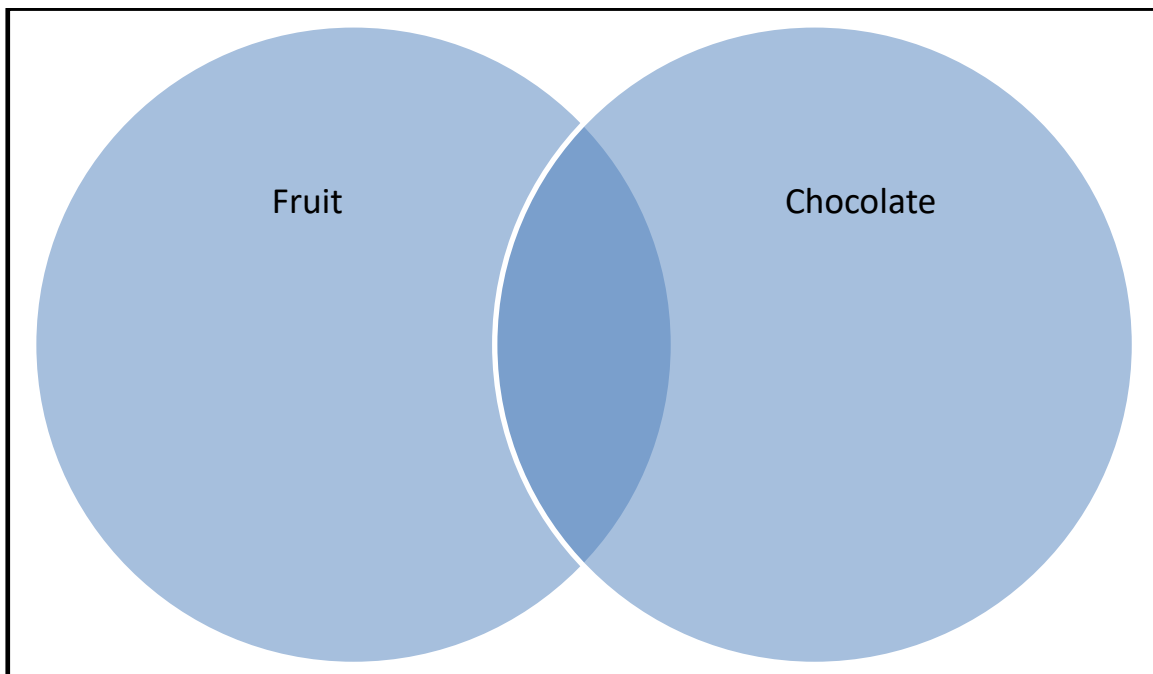
On Monday morning for break they could choose fruit, chocolate, both or neither.

25 chose fruit.

46 chose chocolate.

15 chose neither.

By completing the Venn diagram below, calculate how many of the young people chose both fruit and chocolate.



Answer \_\_\_\_\_ [4]

**29** The fixed charge for electricity is 9.48p per day.

The charge for the units of electricity used is 4.725p per unit.

VAT is charged at 5% on the total.

Ciara used 2182 units in 91 days.

Calculate how much, in total, Ciara will have to pay.

Answer £ \_\_\_\_\_ [4]

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**THIS IS THE END OF THE QUESTION PAPER**

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