



Surname _____

Forename(s) _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

I declare this is my own work.

**GCSE
MATHEMATICS**

F

**Foundation Tier Paper 1 Non-Calculator
8300/1F**

Tuesday 1 November 2022 Morning

Time allowed: 1 hour 30 minutes

At the top of the page, write your surname and forename(s), your centre number, your candidate number and add your signature.

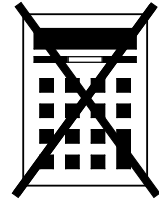
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N 0 V 2 2 8 3 0 0 1 F 0 1

MATERIALS

For this paper you must have:



- mathematical instruments
- the Formulae Sheet (enclosed).

You must **NOT** use a calculator.

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 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.**

ADVICE

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

DO NOT TURN OVER UNTIL TOLD TO DO SO



Answer ALL questions in the spaces provided.

1 Circle the length of time between 4.00 pm and 5.05 pm [1 mark]

55 min

65 min

105 min

125 min

2 A circle has diameter 10 cm

Circle the radius. [1 mark]

5 cm

10 cm

20 cm

100 cm



3 Circle the percentage that is between $\frac{1}{2}$ and $\frac{3}{4}$ [1 mark]

40%

60%

80%

90%

4 Circle the value of $3^2 + 4^2$ [1 mark]

14

17

25

49

[Turn over]



- 5 Simplify fully $8a + 5b + 6a - 2b$
[2 marks]

Answer _____

6



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[Turn over]



- 6 200 students were each asked about the monthly cost of their phone contract.

Here are the results.

	Less than £25	£25 or over
School students	40	90
College students	32	38

- 6 (a) How many MORE school students than college students were asked? [2 marks]

Answer _____



6 (b) What percentage of the 200 students had a monthly cost LESS THAN £25 ? [2 marks]

Answer _____ **%**

[Turn over]



7 The only animals on a farm are 30 cows and 80 sheep.

$\frac{1}{5}$ of the 30 cows are sold

and

$\frac{5}{8}$ of the 80 sheep are sold.

Work out the TOTAL number of animals that are sold. [3 marks]

Answer _____

[Turn over]



8 Some gamers were asked which type of video game they preferred.

65% said Action.

19% said Role-playing.

The rest said Sports.

**What percentage said Sports?
[2 marks]**

Answer _____ %

9



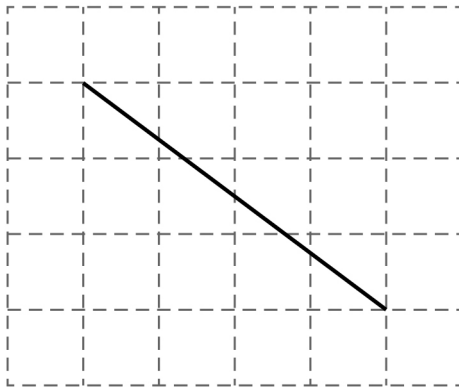
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- 9 (a) A diagonal of a rectangle is drawn on a centimetre grid.

The sides of the rectangle are on the grid lines.



Work out the area of the rectangle.
[2 marks]

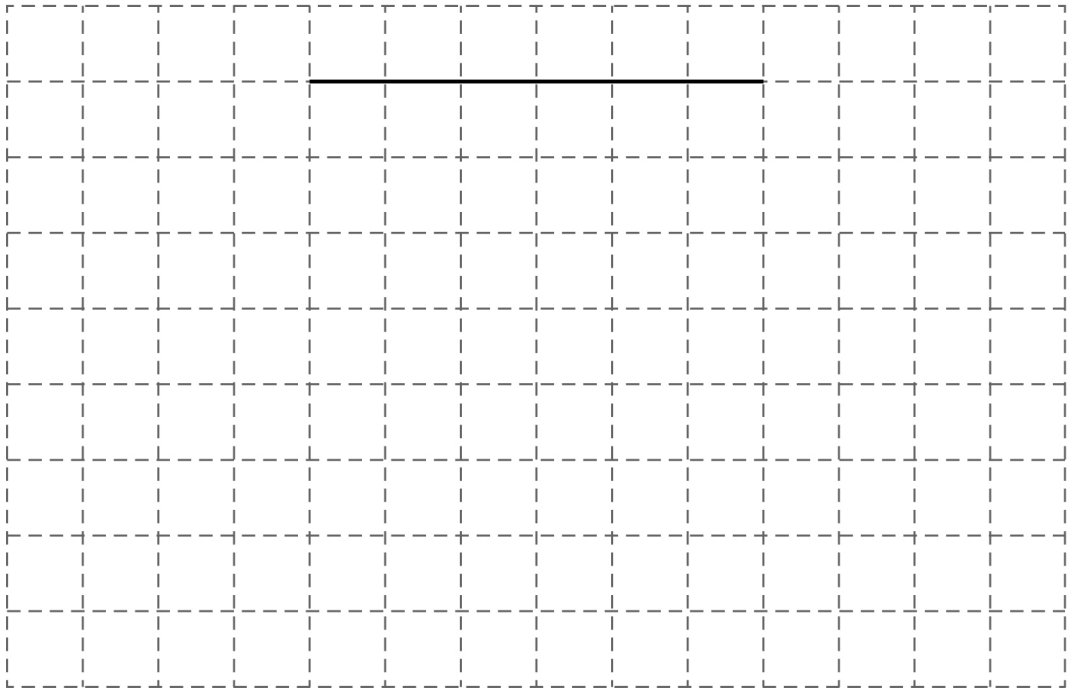
Answer _____ cm^2



9 (b) One side of a parallelogram is drawn on this centimetre grid.

The parallelogram does NOT have any right angles.

Complete the parallelogram so that it has area 24 cm^2 [2 marks]

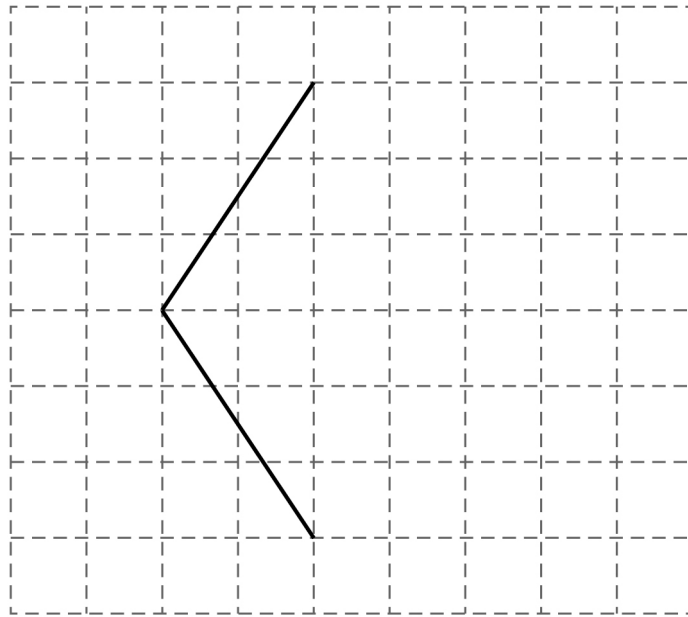


[Turn over]



9 (c) Two sides of a rhombus are drawn on this grid.

Complete the rhombus. [1 mark]



10 Here is a calculation.

$$428 \times 30 = 12\,840$$

Use the calculation to help answer the following questions.

**10 (a) Write down the answer to
 $12\,840 \div 428$ [1 mark]**

Answer _____

**10 (b) Circle the answer to 214×30
[1 mark]**

1284

3210

6420

25 680

[Turn over]

7



11 A shop sells notebooks and pencils.

NOTEBOOKS

Pack of 8 for £12

PENCILS

56p each

or

Pack of 6 for £2.70

11 (a) Marek buys some PACKS of notebooks.

The cost is £60

In total, how many NOTEBOOKS does he buy? [2 marks]

Answer _____

[Turn over]



11 (b) Work out the cheapest cost of 10 pencils. [3 marks]

Answer £ _____

11 (c) The shop also sells folders for £3.20 each.

The shop has this offer.

Buy 3 folders

Get another one for half price



Work out the cost of 4 folders using the offer. [3 marks]

Answer £ _____

8

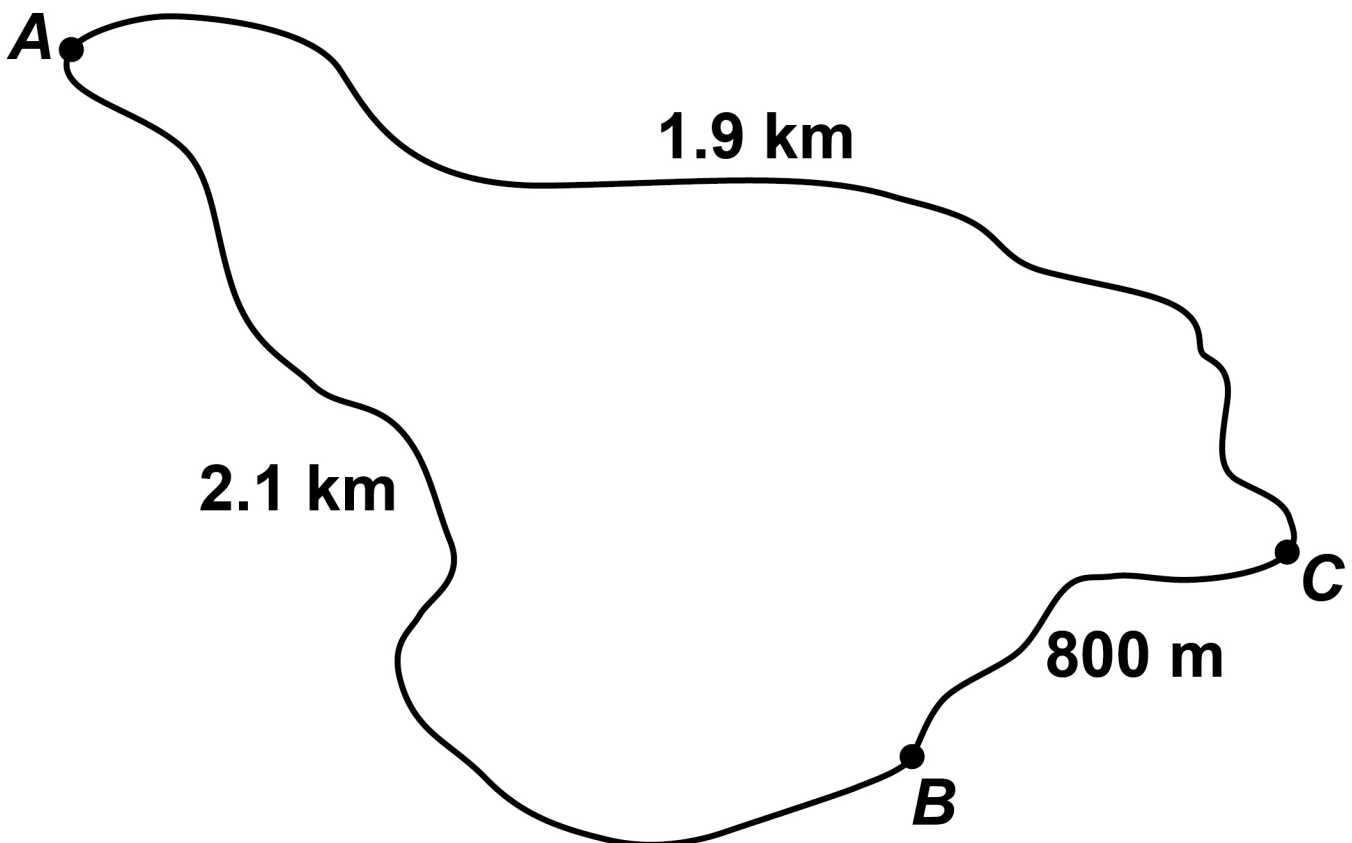
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12 (a) *A*, *B* and *C* are connected by paths.

The length of each path is shown.

The diagram is not drawn accurately.



Nathan and Sue each walk from A to B .

Nathan walks along the path $A \rightarrow B$

Sue walks along the paths $A \rightarrow C \rightarrow B$

How much FURTHER does Sue walk than Nathan?

**Give your answer in kilometres.
[3 marks]**

[Turn over]



Answer _____ km

12 (b) A straight path between D and E passes through P .

$DE = 200$ metres

P is 60 metres CLOSER to E than to D .

The diagram is not drawn accurately.



Work out the ratio $DP : PE$

Give your answer in its simplest form. [3 marks]

Answer _____ :

[Turn over]



13 Emma tries to simplify $cd \times 2$

Here is her method.

$$c \times 2 = 2c$$

$$d \times 2 = 2d$$

$$2c \times 2d = 4cd$$

What is wrong with her method?
[1 mark]

7



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[Turn over]



14 Work out 0.37×0.26

Give your answer as a decimal.
[4 marks]

Answer _____

[Turn over]

15 (a) Solve $11x - 3 = 6x + 1$ [3 marks]

$x =$ _____

15 (b) Solve $\frac{2x}{5} = 14$ [2 marks]

$x =$ _____

9

[Turn over]



- 16** Bag A and bag B each contain only red discs and green discs.

BAG A	Contains 28 red discs There are twice as many red discs as green discs
BAG B	Contains 20 green discs There are 3 red discs for every 5 green discs

- 16 (a)** Work out the **TOTAL** number of discs. [3 marks]



Answer _____

[Turn over]



16 (b) A different bag, C, is empty.

The 28 red discs from A are put into C.

The 20 green discs from B are also put into C.

One disc is now picked at random from each bag.

Complete each statement on the opposite page. [3 marks]

The probability of red from A is

The probability of red from B is

The probability of red from C is

17 What is $\frac{1}{20}$ as a decimal?

Circle your answer. [1 mark]

0.2

0.05

0.02

0.005

[Turn over]

<hr/>
7



18 Divide 62 in the ratio 3 : 7
[3 marks]

Answer _____ and _____

19 n is an odd number.

Why is $n(n + 1)$ always an even number? [2 marks]

[Turn over]





20

Here is some information about the time spent on social media by 40 women and 40 men last week.

Time spent, t (hours)	Number of women	Number of men
$2 < t \leq 5$	12	10
$5 < t \leq 8$	11	17
$8 < t \leq 11$	14	9
$11 < t \leq 14$	2	4
$14 < t \leq 17$	1	0

Tick ONE box, on the opposite page, for each statement. [3 marks]



**Definitely
true**

**Might be
true**

**Cannot
be true**

**Three of the WOMEN
spent more than 11 hours
on social media.**

**The range for the MEN is
15 hours.**

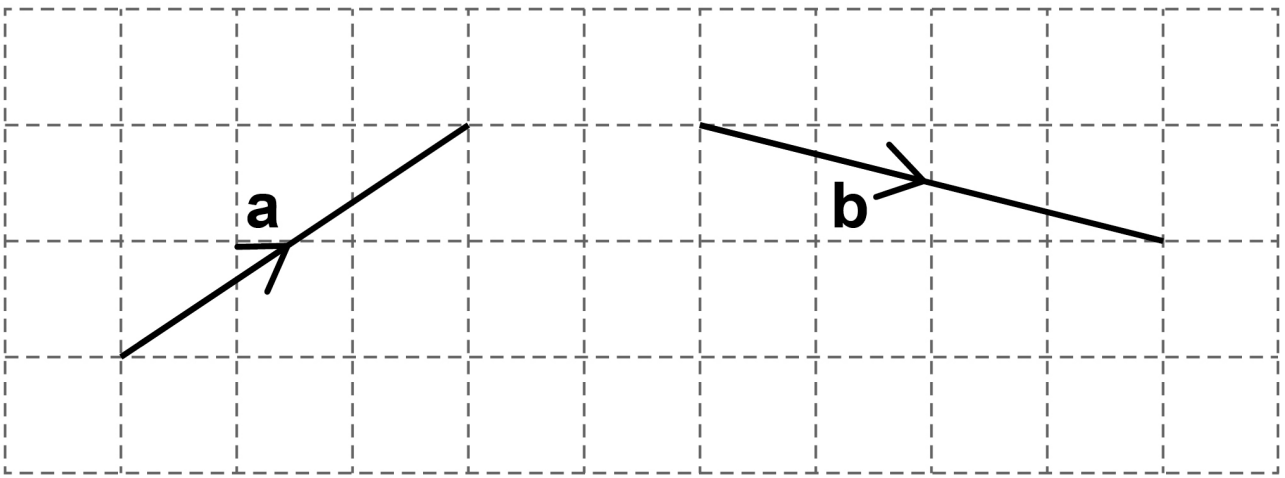
**The women have a higher
median than the men.**

[Turn over]

<hr/>
8

- 21 The diagram shows the vectors a and b .

As a column vector $a = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$



- 21 (a) What is b as a column vector?
[2 marks]

Answer $\left(\quad \right)$



**21 (b) Work out $4a$ as a column vector.
[1 mark]**

Answer $\begin{pmatrix} \\ \end{pmatrix}$

21 (c) $a + c = \begin{pmatrix} 3 \\ 0 \end{pmatrix}$

Work out c as a column vector.

Circle your answer. [1 mark]

$$\begin{pmatrix} 2 \\ 0 \end{pmatrix} \quad \begin{pmatrix} 0 \\ 2 \end{pmatrix} \quad \begin{pmatrix} -2 \\ 0 \end{pmatrix} \quad \begin{pmatrix} 0 \\ -2 \end{pmatrix}$$

[Turn over]



22 Work out $\left(\frac{7}{10} - \frac{4}{15}\right) \div \frac{2}{3}$

Give your answer as a fraction.

[3 marks]



Answer _____

[Turn over]



- 23 Work out all the INTEGER values of x for which $12 \leq 4x < 25$ [2 marks]

Answer _____

9



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[Turn over]



24 Here is some information about 120 people who visit a shop.

$\frac{3}{4}$ of the people buy neither a coat nor a dress.

19 people buy a coat.

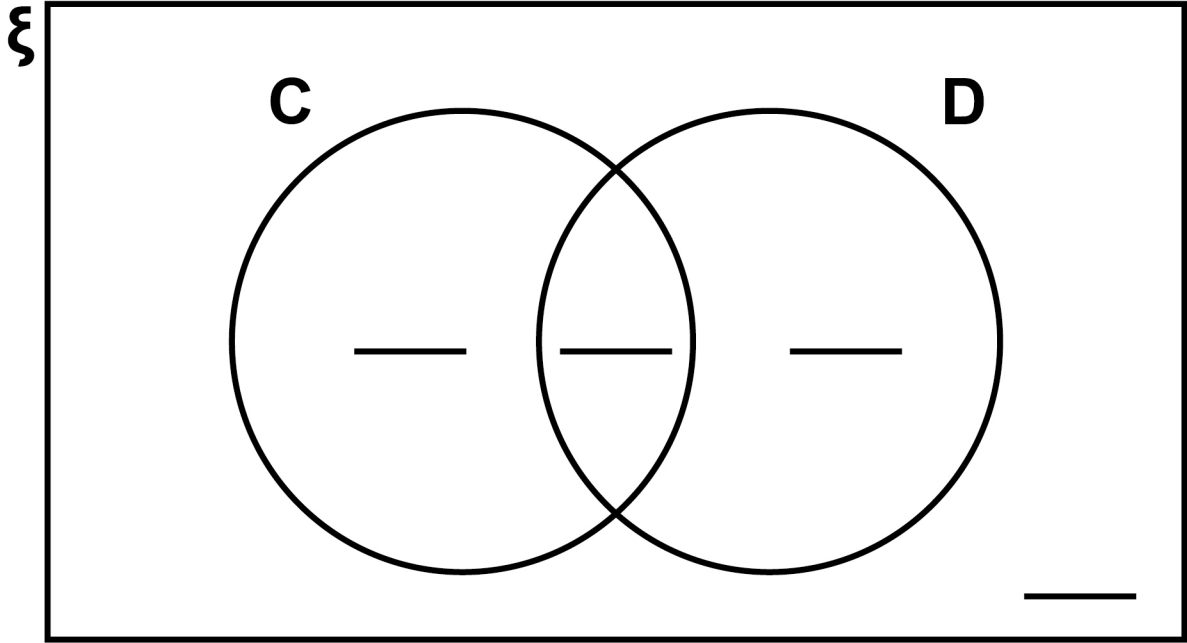
14 people buy a dress.

Complete the Venn diagram, on the opposite page, to represent the information. [3 marks]

ξ = 120 people who visit the shop

C = people who buy a coat

D = people who buy a dress



[Turn over]



- 25 Write $(3^6 \times 3^5) : 3^7$ in the form $n : 1$ where n is an integer.
[3 marks]

Answer _____ : 1



26 a is 10% more than b .

Circle the ratio $a : b$ [1 mark]

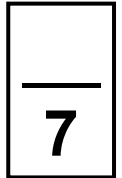
10 : 11

10 : 1

11 : 10

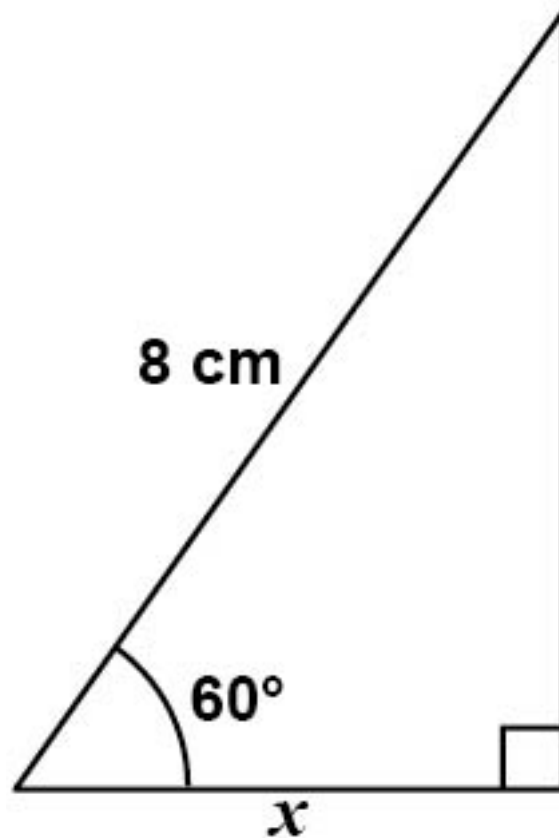
1 : 10

[Turn over]



- 27 Use trigonometry to work out the value of x . [3 marks]

The diagram is not drawn accurately.



$x =$ _____ **cm**

END OF QUESTIONS

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3



**Additional page, if required.
Write the question numbers in the
left-hand margin.**

Additional page, if required.

Write the question numbers in the left-hand margin.

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For Examiner's Use	
Pages	Mark
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TOTAL	

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