

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

Mathematics



**FOR FULL VIDEO SOLUTIONS
SCAN THE QR CODE**

youtube.com/@hannahkettlemaths



Higher Tier

Predicted Paper 2H – 3rd June 2024

Total Marks

--

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may be used where indicated, but not otherwise.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.



Disclaimer: No-one can ever be sure what will definitely appear on the GCSE Maths Papers. I have put this paper together based on common topics we often see on Paper 2, now that we've seen Paper 1. I hope you find it helpful!

For more @hannahkettlemaths GCSE Revision Content:

@hannahkettlemaths
YouTube



@hannahkettlemaths
TikTok



@hannahkettlemaths
Website

Download Weekly
Revision Papers and
more Content



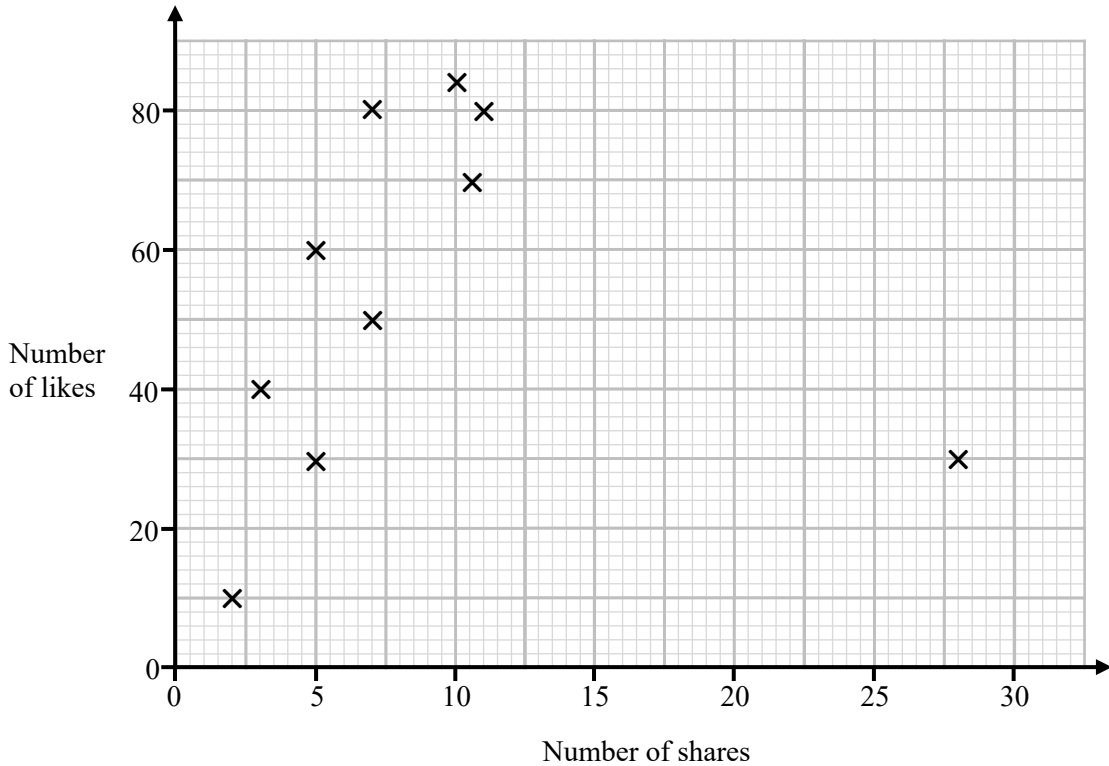
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.



- 1 The scatter graph shows information about the number of likes and shares of ten different posts to a social media account.



One of the points is an outlier.

- (a) Write down the coordinates of this point.

(.....,)

- (b) For all the other points write down the type of correlation.

(1)

The same account makes an eleventh post which had 72 likes.

(1)

- (c) Estimate the number of shares this post had.

(2)

(Total for Question 1 is 4 marks)



VIDEO
SOLUTIONS

- 2 Write 612 as a product of its prime factors.
Give your answer in index form.

.....
(Total for Question 2 is 2 marks)

- 3 (a) Write 0.0409 in standard form.

- (b) Write 2.38×10^7 as an ordinary number.

.....
(1)

- (c) Work out the value of $(1.4 \times 10^{-5}) \div (2.7 \times 10^2)$
Give your answer in standard form correct to 3 significant figures.

.....
(1)

.....
(2)
(Total for Question 3 is 4 marks)

- 4 A number, h , is rounded to 1 decimal place.
The result is 2.1
Write down the error interval for h .

..... $\leq h <$
(Total for Question 4 is 2 marks)



VIDEO
SOLUTIONS

5 (a) Expand and simplify $4(2k + 1) - (k - 2)$

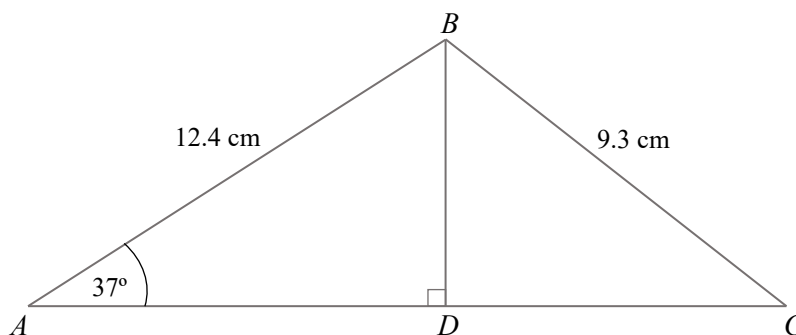
.....
(2)

(b) Simplify $(3a^4b^2)^3$

.....
(2)

(Total for Question 5 is 4 marks)

6



ADC is a straight line.

Work out the length of CD .

Give your answer correct to 1 decimal place.

..... cm
(Total for Question 6 is 4 marks)

7 The frequency table gives information about the length of 50 parsnips.



VIDEO
SOLUTIONS

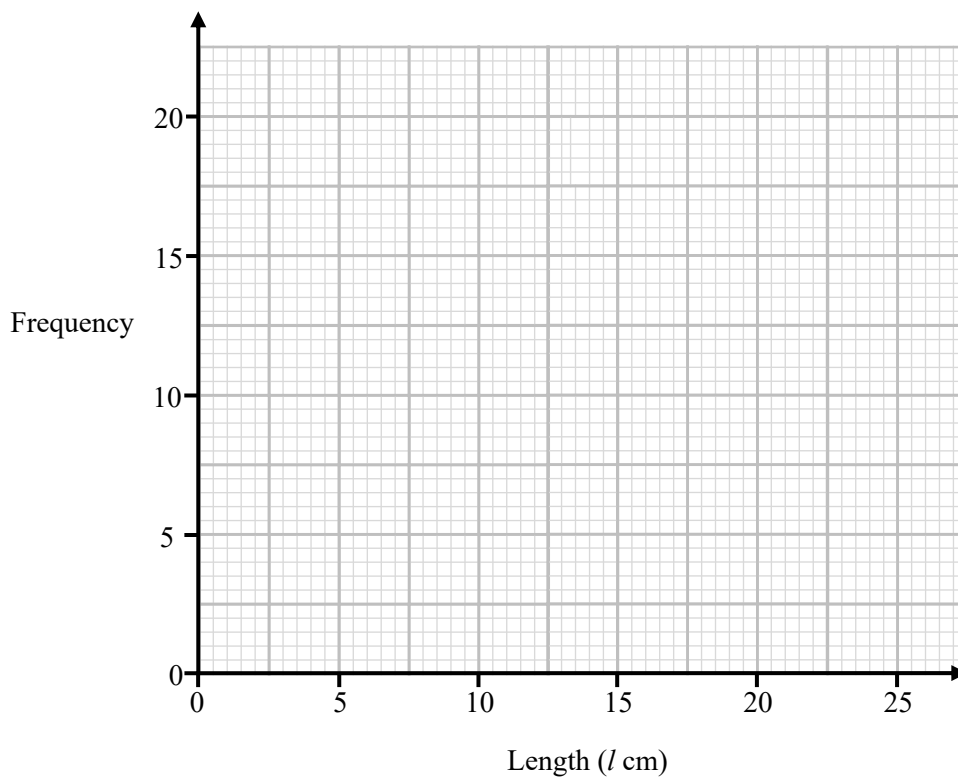
Length (l cm)	Frequency
$0 < l \leq 5$	2
$5 < l \leq 10$	5
$10 < l \leq 15$	15
$15 < l \leq 20$	20
$20 < l \leq 25$	8

(a) Find the class interval that contains the median.

.....

(1)

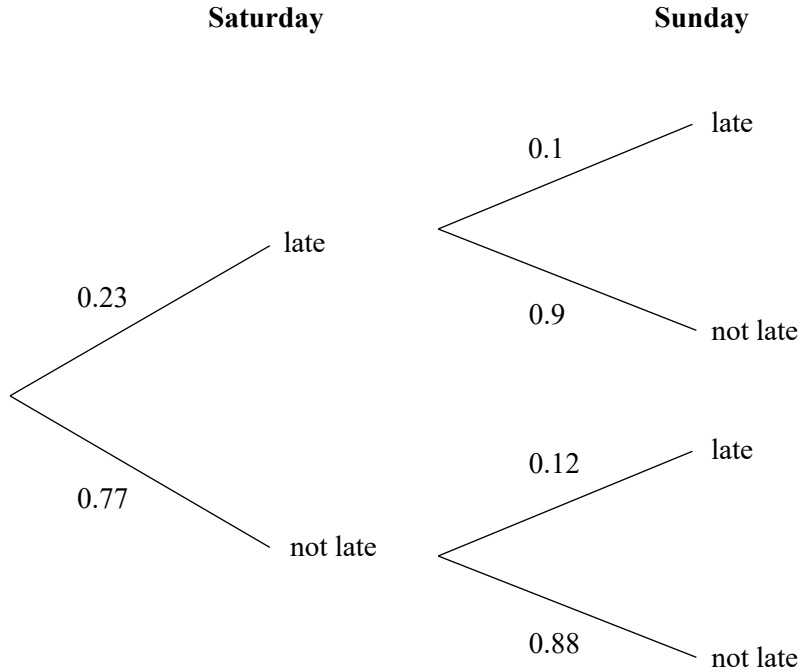
(b) On the grid, draw a frequency polygon for the information in the table.



(2)



8 The probability tree diagram shows the probabilities that Megan will be late for work on Saturday and on Sunday.

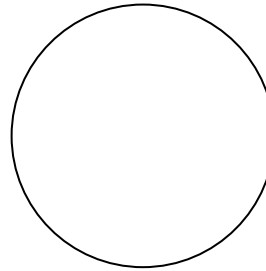
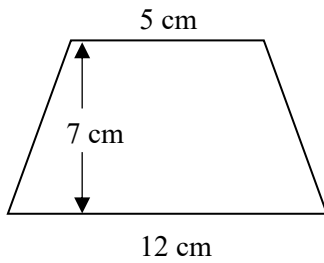


Calculate the probability that Megan will be late on exactly one of the two days.

9 Here is a trapezium and a circle.



VIDEO
SOLUTIONS



The area of the trapezium is equal to the area of the circle.

Work out the diameter of the circle.

Give your answer to 3 significant figures.

..... cm

(Total for Question 9 is 3 marks)



VIDEO
SOLUTIONS

10 Matt and Damien share 210 dice in the ratio 2:5

Damien gives some of the dice to Matt.

Matt and Damien now share the dice in the ratio 2:3

Work out the percentage increase in the number of dice Matt has.

.....%

(Total for Question 10 is 3 marks)

11 Katy has 10 t-shirts, 2 pairs of jeans and 3 skirts.

She is going to choose an outfit from either

a t-shirt and a pair of jeans

a t-shirt and a skirt

Work out the number of different outfits Katy can choose.

.....

(Total for Question 11 is 3 marks)



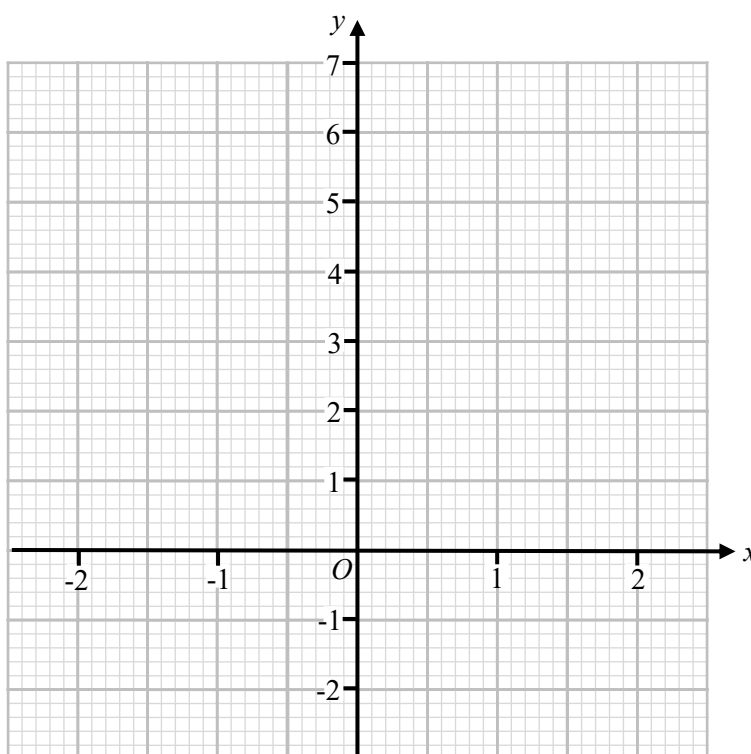
VIDEO
SOLUTIONS

12 (a) Complete the table of values for $y = x^2 - 2x - 1$

x	-2	-1	0	1	2
y					

(2)

(b) On the grid, draw the graph of $y = x^2 - 2x - 1$ for values of x from -2 to 2



(2)

(c) Using your graph, find estimates for the solutions of the equation $x^2 - 2x - 1 = -1.4$

.....
(2)

(Total for Question 12 is 6 marks)

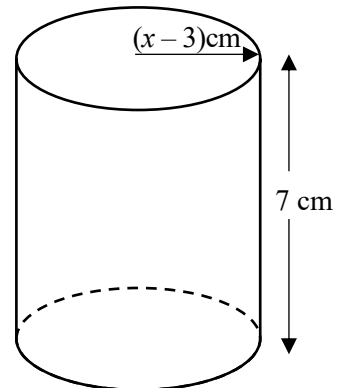
- 13** Jean invests £5000 in a savings account.
The savings account pays compound interest at a rate of $x\%$
After 3 years, Jean has an extra £559.67 in interest in her savings account.
Work out the value of x .
Give your answer to 1 decimal place



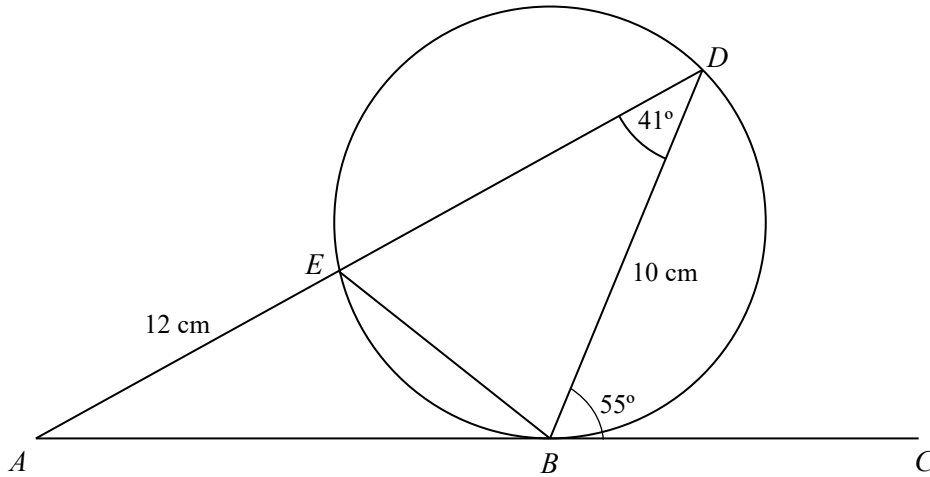
VIDEO
SOLUTIONS

(Total for Question 13 is 3 marks)

- 14** The diagram shows a cylinder.
The cylinder has radius $(x - 3)$ cm and height 7 cm.
The volume of the cylinder is 80π
Work out the value of x .
Give your answer to 2 decimal places.



(Total for Question 14 is 4 marks)



The points B , E and D lie on the circumference of a circle.

AED is a straight line.

ABC is a tangent to the circle at the point B .

$AE = 12$ cm

$BD = 10$ cm

Angle $EDB = 41^\circ$

Angle $DBC = 55^\circ$

Work out the length of AB .

Give your answer to 3 significant figures.

..... cm

(Total for Question 15 is 5 marks)

16 (a) Show that the equation $x^3 + 5x - 3 = 0$ has a solution between 0 and 1.



VIDEO
SOLUTIONS

(2)

(b) Show that the equation $x^3 + 5x - 3 = 0$ can be rearranged to give $x = \frac{3}{x^2 + 5}$

(2)

(c) Starting with $x_0 = 1$, use the iteration formula $x_{n+1} = \frac{3}{x_n^2 + 5}$ three times to find an estimate for the solution of $x^3 + 5x - 3 = 0$

.....
(3)

(Total for Question 16 is 7 marks)



VIDEO
SOLUTIONS

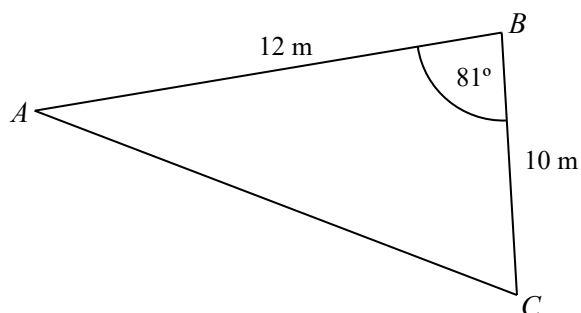
17 y is inversely proportional to the cube of x .

When $y = 10$, $x = 2$

Find the value of y when $x = 0.5$

.....
(Total for Question 17 is 3 marks)

18 ABC is a triangle.



Work out the area of triangle ABC .

Give your answer correct to 3 significant figures.

..... m²
(Total for Question 18 is 2 marks)

19 Solve $\frac{5}{2x-1} - \frac{2}{2x+1} = 2$



VIDEO
SOLUTIONS

.....
(Total for Question 19 is 5 marks)



VIDEO
SOLUTIONS

20 A car travels a distance of 450 miles in 8 hours and 30 minutes.

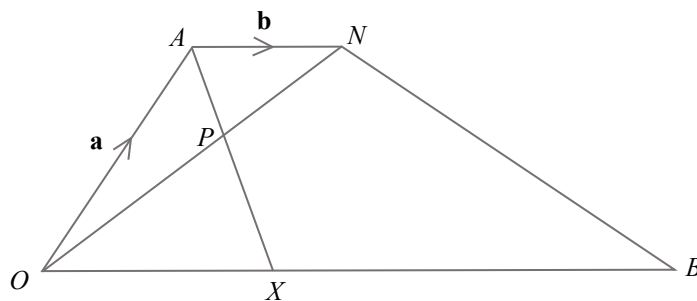
The distance is measured to the nearest mile.

The time is measured to the nearest 5 minutes.

By considering bounds, work out the average speed of the car to a suitable degree of accuracy.

You must give a reason for your answer.

..... mph
(Total for Question 20 is 5 marks)



The diagram shows trapezium $OANB$.

$$\vec{OA} = \mathbf{a}$$

$$\vec{AN} = \mathbf{b}$$

X is a point on OB .

ON and AX intersect at the point P

$$OP : PN = 3 : 2$$

Find \vec{AX} in terms of \mathbf{a} and \mathbf{b} .

$$\vec{AX} = \dots\dots\dots$$

(Total for Question 21 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS