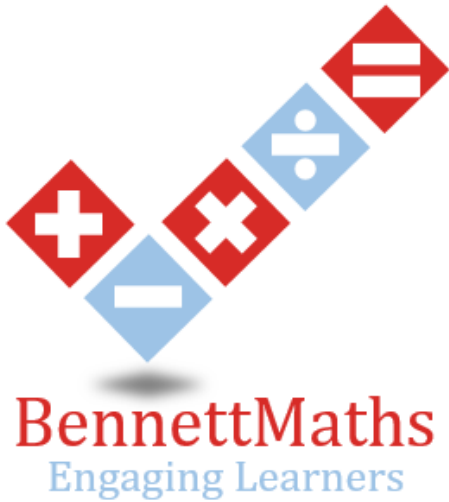


***BennettMaths will be live on TikTok the night before paper 1,
going through all the predicted papers.
Wednesday 13th May at 8pm***

Candidate surname

Other names



**Best Guess Paper –
1H
Non-Calculator**

Within this booklet you will find my best guess at which topics might be on the first AQA Higher gcse maths paper.

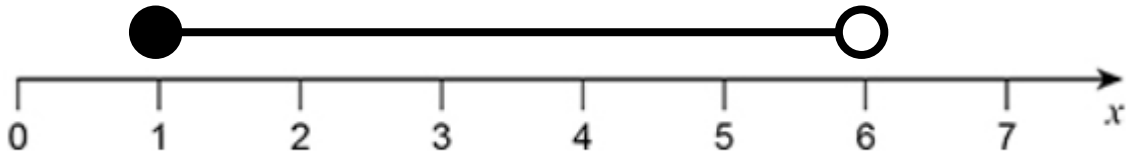
There may be other topics that appear on paper 1, so please ensure that you continue to revise all topics.

The paper consists of 23 questions totalling 80 marks.

1

(a) Circle the inequality represented by the diagram.

[1 mark]



$1 < x < 6$

$1 \leq x < 6$

$1 \leq x \leq 6$

$1 < x \leq 6$

(b) Circle the list of **all** the integers that satisfy $-1 < x \leq 5$

[1 mark]

$-1, 0, 1, 2, 3, 4, 5$

$-1, 0, 1, 2, 3, 4$

$0, 1, 2, 3, 4$

$0, 1, 2, 3, 4, 5$

2 Express $5^4 \div 5^{-2} \times 25$ in the form 5^n

[2 marks]

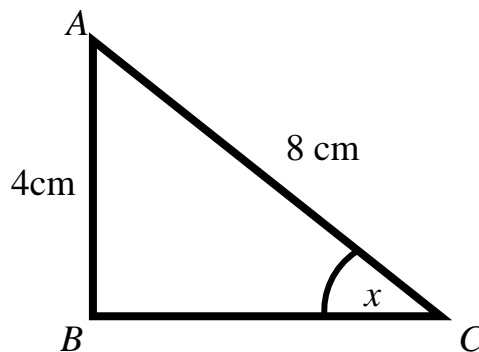
Answer _____

3

Triangle ABC is shown below.

AB = 4cm

AC = 8cm



Work out the size of angle x

[3 marks]

Answer _____

- 4 A number, n , is rounded to 2 significant figures.
The result is 26.
Complete the error interval for n

[2 marks]

$$\dots\dots\dots \leq n < \dots\dots\dots$$

- 5 ABCD is a rectangle.

$$3\frac{3}{4} \text{ cm}$$

$$1\frac{3}{8} \text{ cm}$$



- (a) Work out the perimeter of ABCD

[3 marks]

Answer _____

- (b) Work out the area of ABCD

[2 marks]

Answer _____

6 Margot takes part in a 5 km fun run.

During the first 3 km she runs at an average speed of 6 km/h.

She is aiming to complete the race in under 54 minutes.

Work out the average speed that she needs to maintain to finish in under 54 minutes.

[4 marks]

Answer _____

7

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.

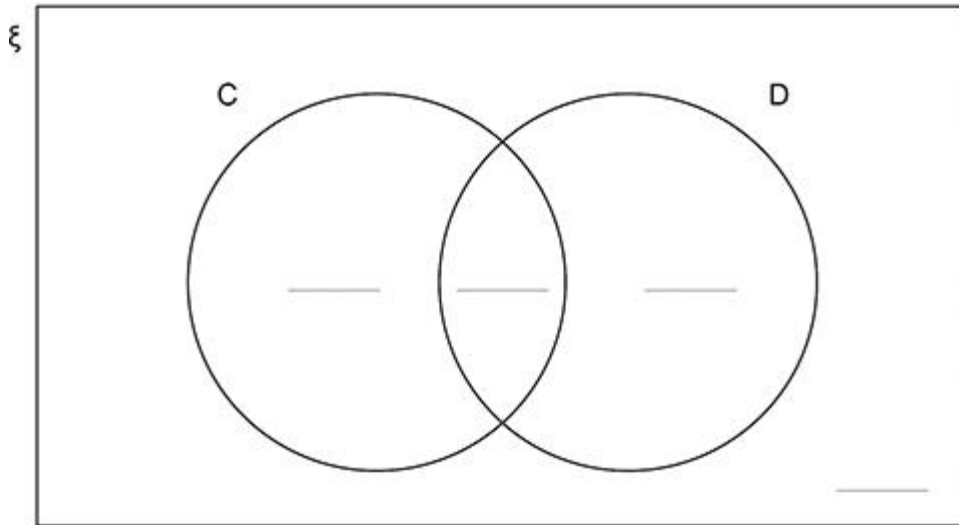
Complete this Venn diagram to represent the information.

ξ = 120 people who visit the shop

C = people who buy a coat

D = people who buy a dress

[3 marks]



8 Circle the factorised version of $x^2 - 5x + 6$

$$(x + 3)(x + 2)$$

$$(x + 3)(x - 2)$$

$$(x - 3)(x + 2)$$

$$(x - 3)(x - 2)$$

[1 mark]

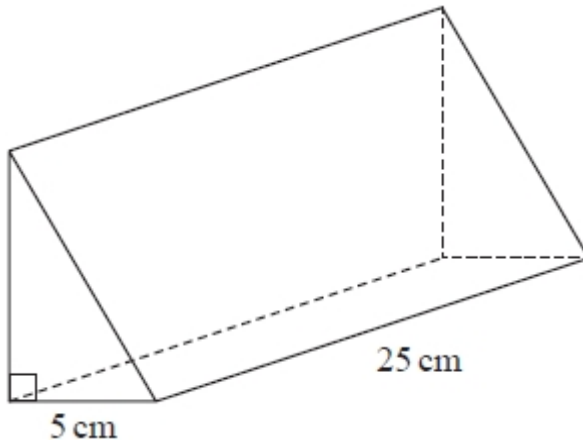
9 Work out the value of

$$\left(\frac{16}{81}\right)^{-\frac{3}{4}}$$

[3 marks]

Answer _____

10 The diagram shows a prism.



The cross section of the prism is a right-angled triangle.

The base of the triangle has length 5 cm

The prism has length 25 cm

The prism has volume 750 cm^3

Work out the height of the prism.

[3 marks]

Answer _____

11

Express $8\sqrt{16 \times 10^4}$ in the form $1:n$

[3 marks]

Answer _____

12

The group frequency table gives information on the time taken, in minutes, for 80 students to complete their weekly maths homework.

Time (t minutes)	Frequency
$0 < t \leq 20$	5
$20 < t \leq 40$	30
$40 < t \leq 60$	20
$60 < t \leq 80$	15
$80 < t \leq 100$	8
$100 < t \leq 120$	2

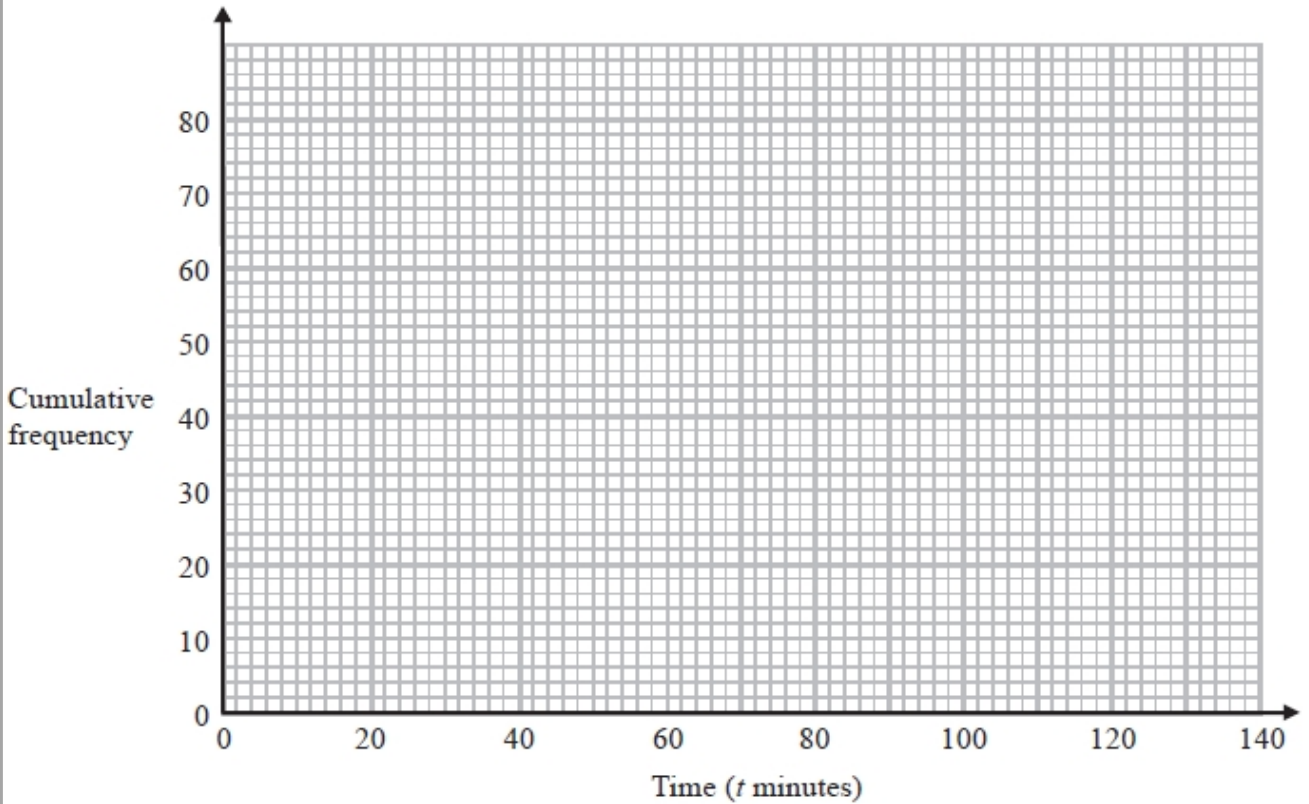
(a) Complete the cumulative frequency table

Time (t minutes)	Cumulative frequency
$0 < t \leq 20$	
$0 < t \leq 40$	
$0 < t \leq 60$	
$0 < t \leq 80$	
$0 < t \leq 100$	
$0 < t \leq 120$	

[1 mark]

(b) On the grid, draw the cumulative frequency graph for this information

[2 marks]



- (c) Using your graph, work out an estimate for the median time taken.

[1 mark]

Answer _____

13 Work out

$$0.4\dot{5} \times 0.\dot{7}$$

Give your answer as a fraction.
You must show your working

[4 marks]

Answer _____

14 Here are the first four terms of a quadratic sequence.

$$-3, 3, 13, 27$$

Work out an expression, in terms of n , for the n th term of the sequence

[3 marks]

Answer _____

15 y is directly proportional to x^3

When y is 320 and x is 4.

Work out the value of x when y is 135

[3 marks]

Answer _____

16

(a) Express $x^2 + 8x - 10$ in the form $(x + p)^2 - q$

[2 marks]

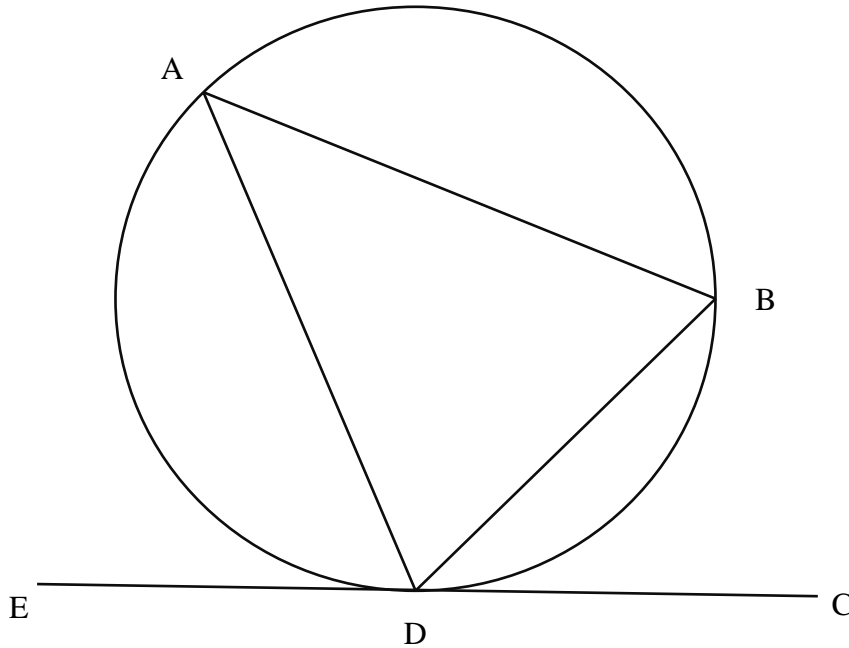
Answer _____

(b) Hence, or otherwise, write down the turning point for $y = x^2 + 8x - 10$

[1 mark]

Answer _____

17



Points ABD are on a circle such that:

$AB = AD$

Angle $ABD = y^\circ$

Angle $BDC = x^\circ$

Show that $\frac{1}{2}x + y = 90$

[3 marks]

Answer _____

18 Rationalise the denominator

$$\frac{20 + \sqrt{45}}{\sqrt{5}}$$

Give your answer in the form $a\sqrt{b} + c$

[3 marks]

Answer _____

19 Simplify fully

$$\frac{12x^2 - 8}{6x^2 - 4}$$

[2 marks]

Answer _____

20 A circle **C** has the equation $x^2 + y^2 = r^2$

The point **A** with coordinates (6,8) lies on **C**.

(a) Work out the length of the diameter of **C**

[3 marks]

Answer _____

(b) The tangent to circle C passes through the point (6,8).

Work out the equation of the tangent.

[4 marks]

Answer _____

23

$$f(x) = 3x^2 - 2$$

$$g(x) = 2x + 3$$

(a)

Find $fg(2)$

[2 marks]

Answer _____

(b)

Find $f^{-1}(x)$

[2 marks]

Answer _____

(c)

Solve $fg(x) = g^{-1}(5)$

[4 marks]

Answer _____