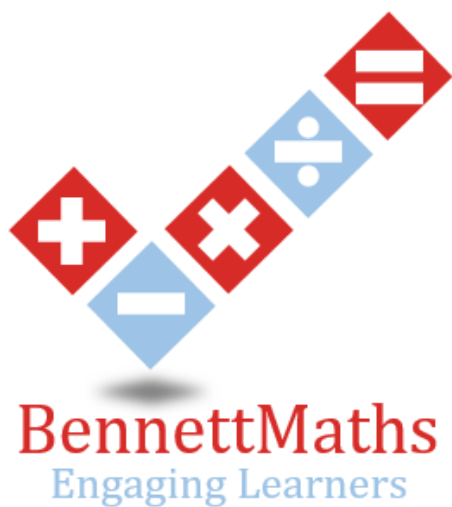


Candidate surname

Other names



## Best Guess Paper – 2H Calculator

Within this booklet you will find my best guess at what might be on the next edexcel gcse maths paper.

There are may be other topics that appear on paper 2, so please ensure that you continue to revise all topics.

The paper consists of 21 questions totalling 80 marks.

1(a) Express 144 as a product of prime factors

---

(2)

1(b) Find the highest common factor of 144 and 180

---

(2)

(Total for Question 1 is 4 marks)

2(a) Leo is going to invest £2500 for 3 years. He will choose one of the following banks.

**Bank of Bennett**

5.25% compound interest for  
the 1<sup>st</sup> year.

4% compound interest for all  
future years.

**Bank of Buckley**

4.6% compound interest for  
the first 3 years

Which bank will return the greatest amount of interest

.....  
(3)

2(b) Bank of Buckley have a special offer available of 4.7% compound interest for the first 3 years. Will this affect your answer to part (a)? Give a reason for your answer.

.....  
.....  
(1)

(Total for Question 2 is 4 marks)

- 3 The frequency table below shows the pocket money received by 35 pupils.

Pocket Money	Frequency
$0 \leq x < 5$	7
$5 \leq x < 8$	8
$8 \leq x < 10$	16
$10 \leq x < 20$	4

Work out an estimate for the mean amount of pocket money received by each pupil.

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

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

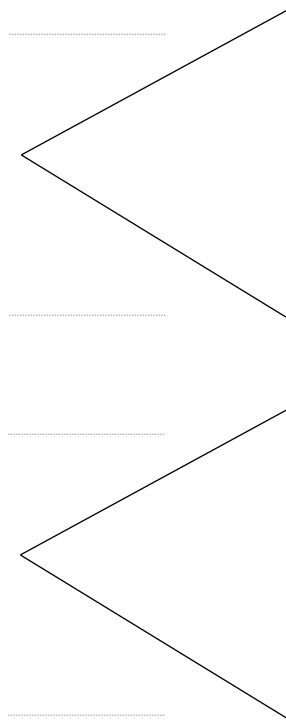
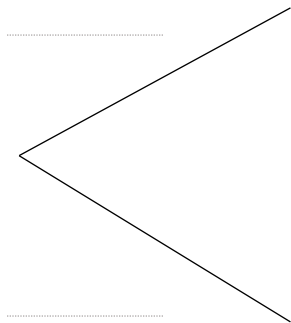
.....  $\leq n <$  .....

(Total for Question 4 is 2 marks)

- 5(a) Margot is going to play one game of snooker and one game of pool.  
The probability that Margot wins a game of snooker is 0.9.  
The probability that Margot does not win a game of pool is 0.3.

Snooker

Pool



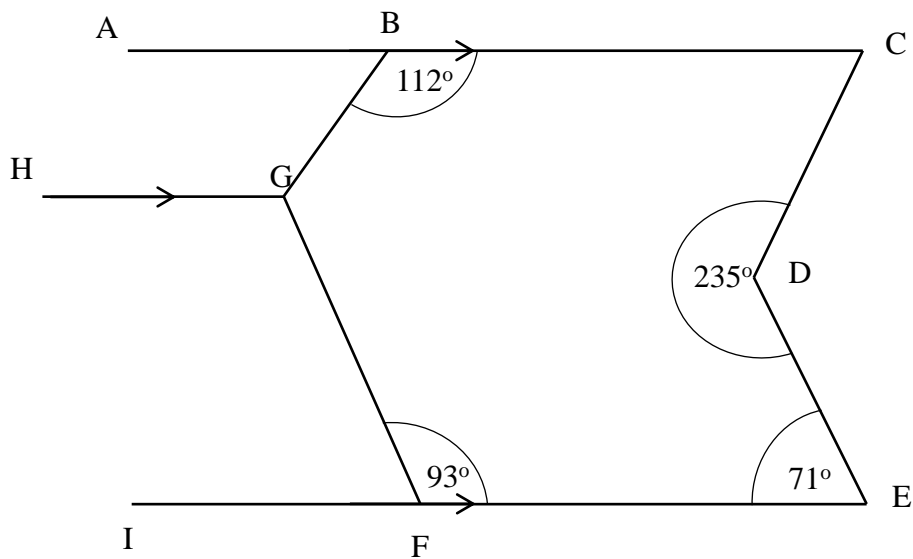
(2)

- 5(b) Work out the probability that Margot wins at both snooker and pool.

(2)

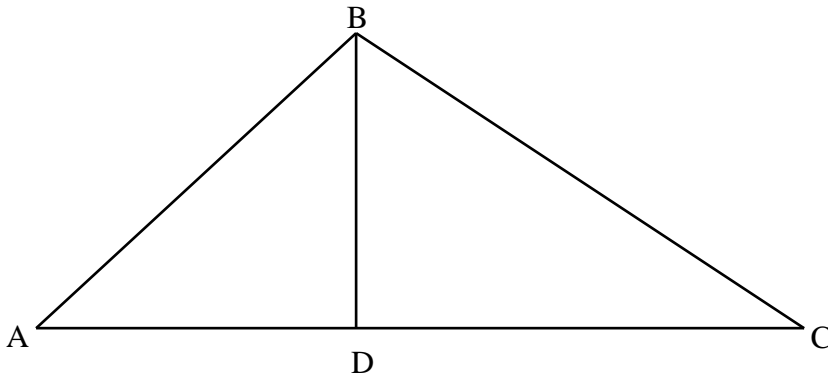
(Total for Question 5 is 4 marks)

- 6 Shape BCDEFG is an irregular hexagon.  
Lines AC, HG & IE are parallel.



Work out the size of angle BCD

- 7 Triangle ABC has been drawn below.  
AB = 5.4 cm  
BC = 6.2 cm  
AD = 3.5 cm

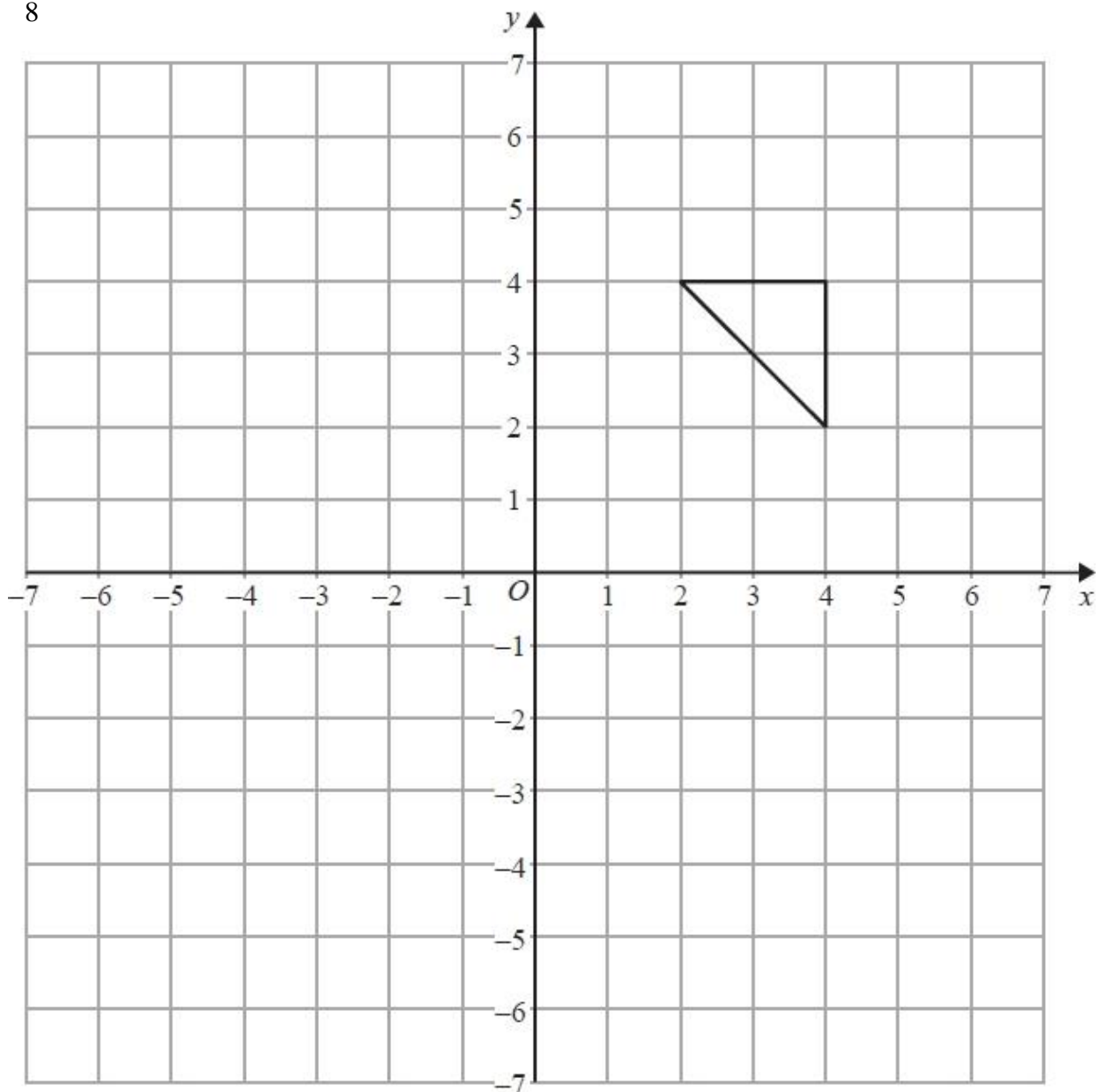


Work out the size of angle BCD

o

(Total for Question 7 is 4 marks)

8



On the grid, enlarge the triangle by scale factor  $-1.5$  with centre  $(0,2)$

---

(2)

(Total for Question 8 is 2 marks)



- 9  $L_1$  has the equation of  $y = 3x - 8$   
 $L_2$  has the equation of  $4x + 12y = 96$

Sam says that the two lines are perpendicular.  
Is she correct?

---

(Total for Question 9 is 3 marks)

- 
- 10  $y$  is directly proportional to  $x^3$   
When  $y$  is 352 and  $x$  is 4.  
Work out the value of  $x$  when  $y$  is 148.5

---

(Total for Question 10 is 3 marks)

- 11 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

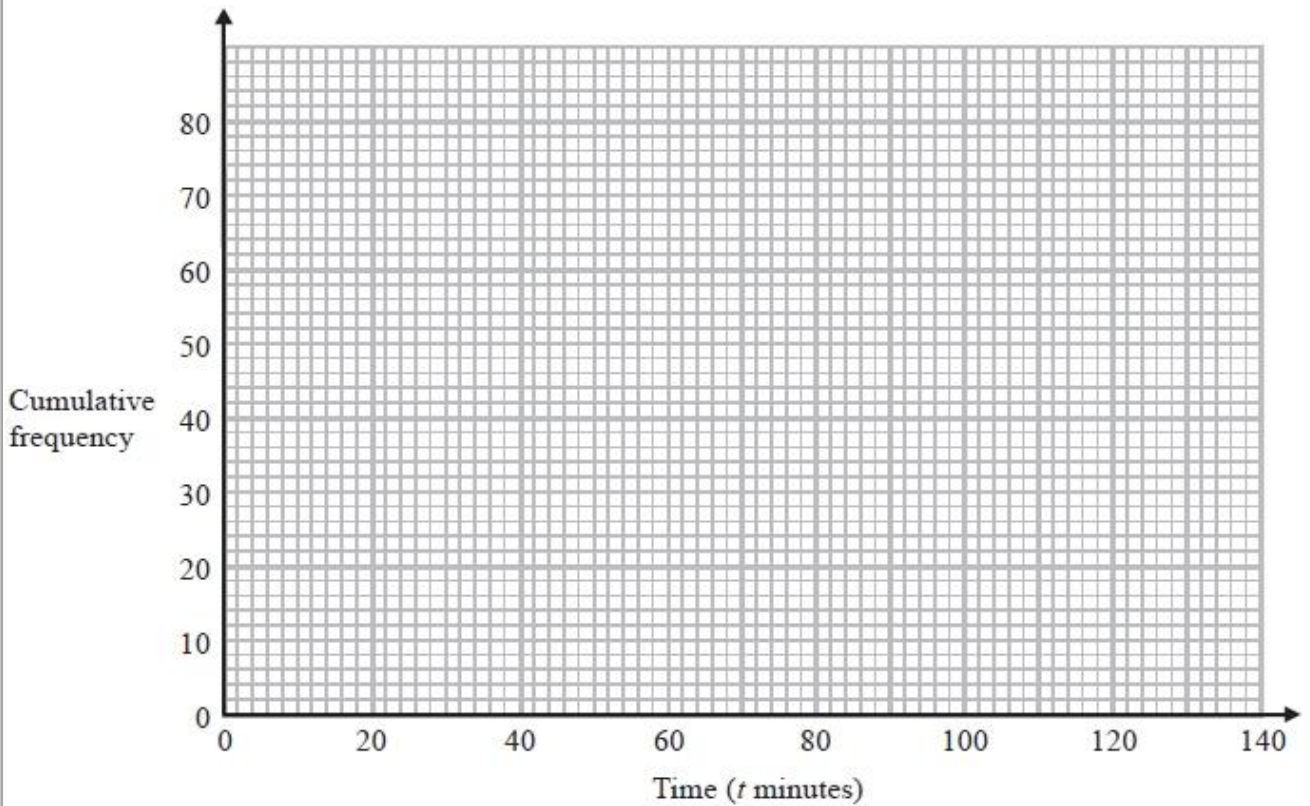
- 11(a) Complete the cumulative frequency table

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)

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

(2)

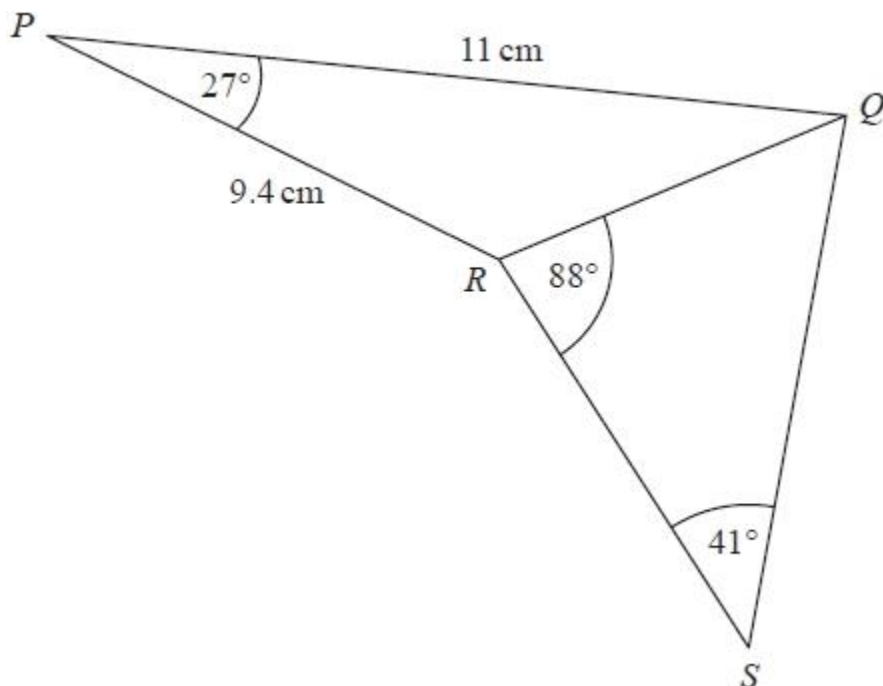


11(c) Using your graph, work out an estimate for the median time taken.

(1)

(Total for Question 11 is 4 marks)

12 PQR and QRS are triangles



Calculate the length of RS.

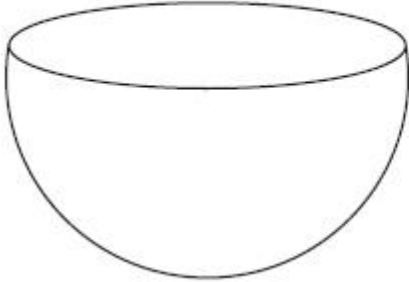
Give your answer correct to 3 significant figures.

You must show all of your working

\_\_\_\_\_ cm

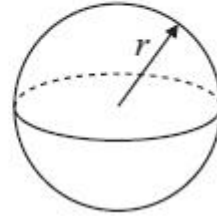
(Total for Question 12 is 4 marks)

- 13 The diagram shows a solid hemisphere



$$\text{Volume of sphere} = \frac{4}{3}\pi r^3$$

$$\text{Surface area of sphere} = 4\pi r^2$$



- (a) The diameter of the sphere is 12.3cm.  
Work out the volume of the hemisphere.

---

(2)

- (b) Maggie says that  $300\text{cm}^2$  is the same value as  $3000\text{mm}^2$ .  
Is Maggie correct. Give a reason for your answer.

---

(1)

(Total for Question 13 is 4 marks)

- 14 Katie has a pond containing some fish.  
On Monday, she catches 45 fish and places a tag on them.  
On Tuesday, she catches 240 fish, 18 of the fish have a tag on them.

Work out an estimate for the total number of fish in the pond.

.....  
(Total for Question 14 is 2 marks)

---

- 15 The population of grey squirrels in Garstang in 2024 is 12,000.  
Population growth is given by the following iterative formula

$$P_{n+1} = 1.04P_n + 180$$

Work out an estimate for the number of grey squirrels in Garstang in  
2025, 2026 and 2027

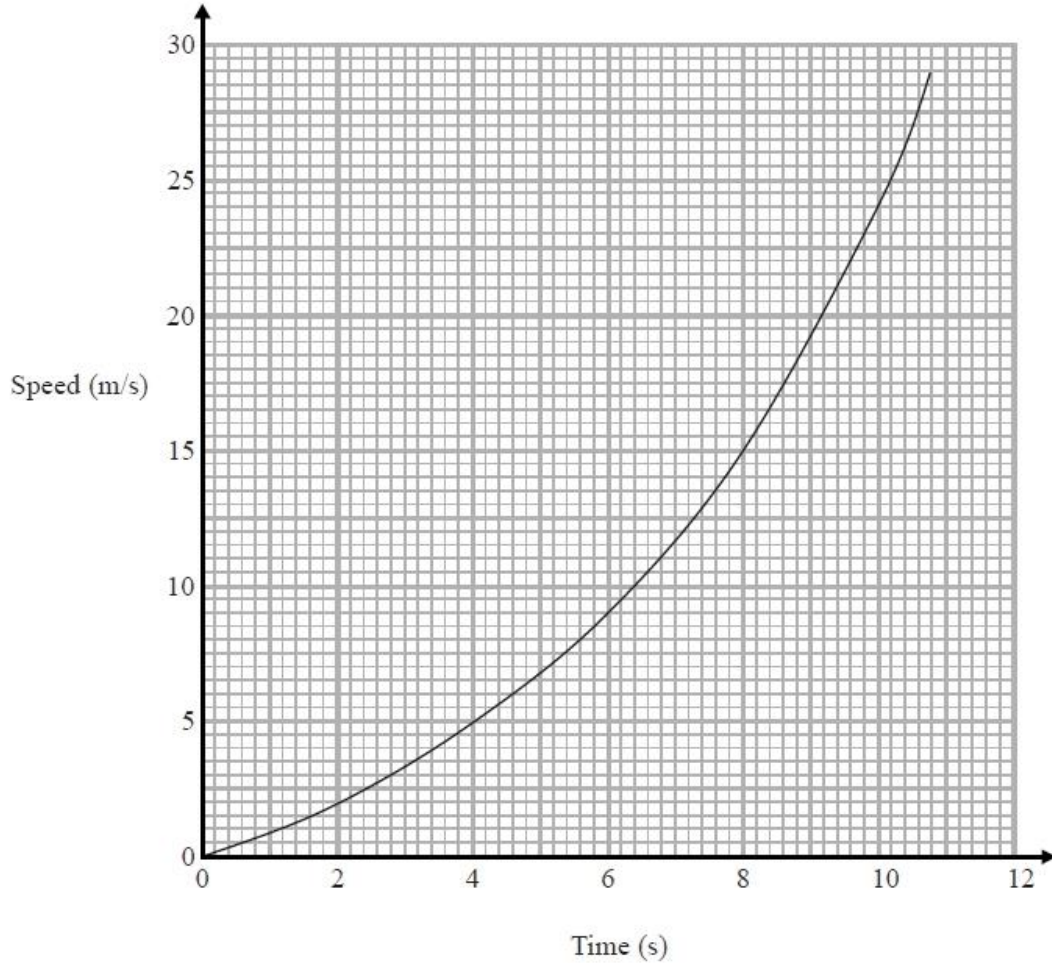
2025 .....

2026 .....

2027 .....

(Total for Question 15 is 3 marks)

16 Area under the curve



(a) Work out an estimate for the distance the car travelled in the first 6 seconds.

(3)

(b) Is your answer to part (a) an underestimate or overestimate? Give reasons for your answer

(1)

(Total for Question 16 is 4 marks)

17 Solve

$$\frac{2x + 4}{5x - 1} + \frac{x + 3}{4x} - 1 = 4$$

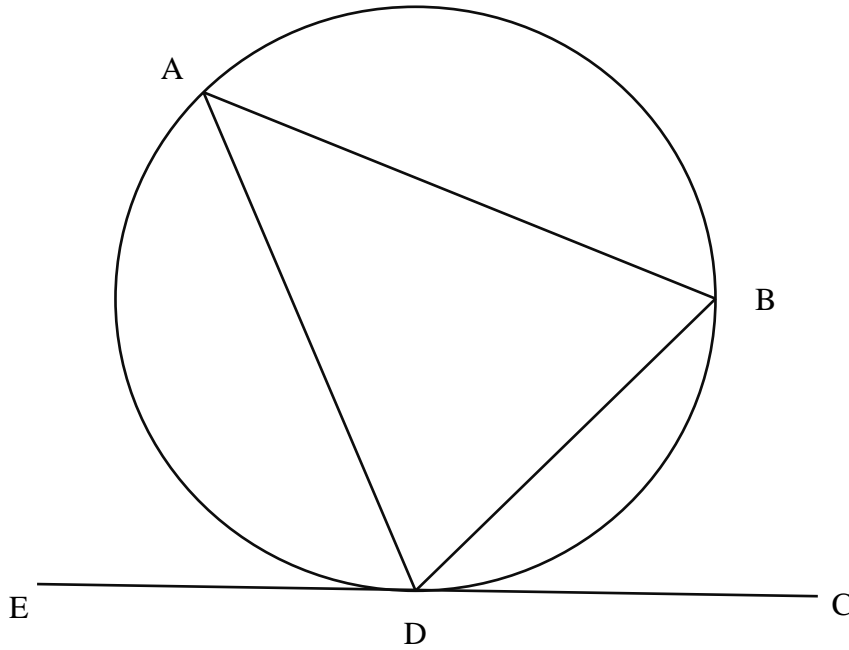
Give your answers correct to 3 significant figures

---

(Total for Question 17 is 5 marks)



18



Points A, B, D are on a circle such that:

$AB = AD$

Angle  $ABD = y^\circ$

Angle  $BDC = x^\circ$

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

Give reasons for your answer

(Total for Question 18 is 4 marks)

19  $f(x) = 3x^2 - 2$        $g(x) = 2x + 3$

(a) Find  $fg(2)$ 

---

(2)

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

---

(2)

(c) Solve  $fg(x) = g^{-1}(21)$ 

---

(4)

(Total for Question 19 is 8 marks)

20 Solve  $2x^2 + 9x - 35 > 0$

---

(Total for Question 20 is 3 marks)

- 21 At the point that star A, star B and star C are stationary, they form a triangle.  
The distance between star A and the star B is  $1.8 \times 10^5$  km to the nearest 10,000 km  
The distance between star A and the star C is  $1.6 \times 10^5$  km to the nearest 10,000 km  
The distance between the star B and the star C is  $1.5 \times 10^5$  km to the nearest 10,000 km

Find the upper bound of the area of the triangle created between Star A, Star B and Star C.  
Giving your answer in standard form correct to 3 significant figures.

---

(Total for Question 21 is 6 marks)

**Total for this paper is 80 marks**