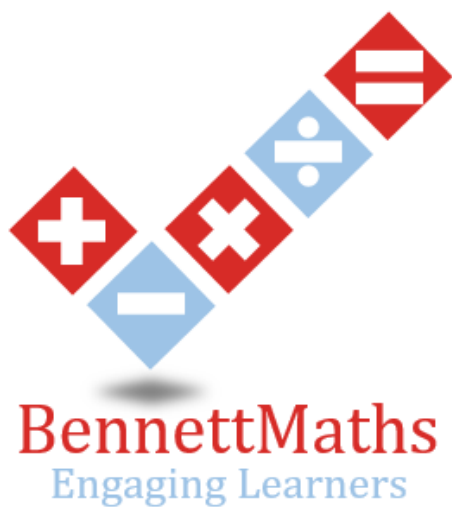


Candidate surname

Other names



Best Guess Paper – 3H Calculator

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

There may be other topics that appear on paper 3, so please ensure that you continue to revise all topics.

The paper consists of 23 questions totalling 80 marks.

1(a) Expand and simplify

$$3(2x + 4) - 2(x - 1)$$

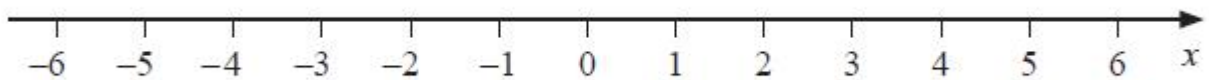
(2)

1(b) Factorise fully

$$4x^2y^3 + 6x^3y$$

1(c) Express on the number line

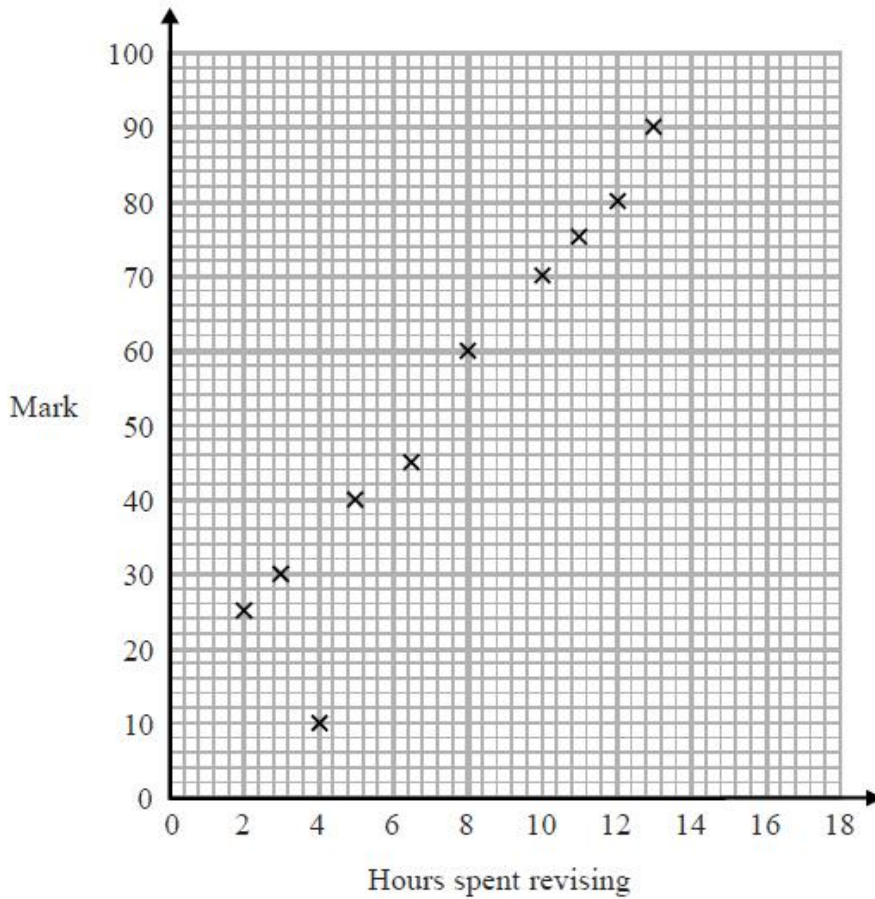
$$-4 < x + 1 \leq 5$$



(2)

(Total for Question 1 is 6 marks)

- 2 The scatter shows the maths scores attained by some students in Year 11.



- 2(a) Daisy scored 80 marks after revising for 4 hours.
Plot this information on the scatter graph

(1)

- 2(b) Sadie revised for 9 hours. Work out an estimate for the mark she would achieve

(2)

- 2(c) Daphne says that using the graph to estimate the mark achieved for somebody spending 18 hours revising would not be appropriate. Explain why?

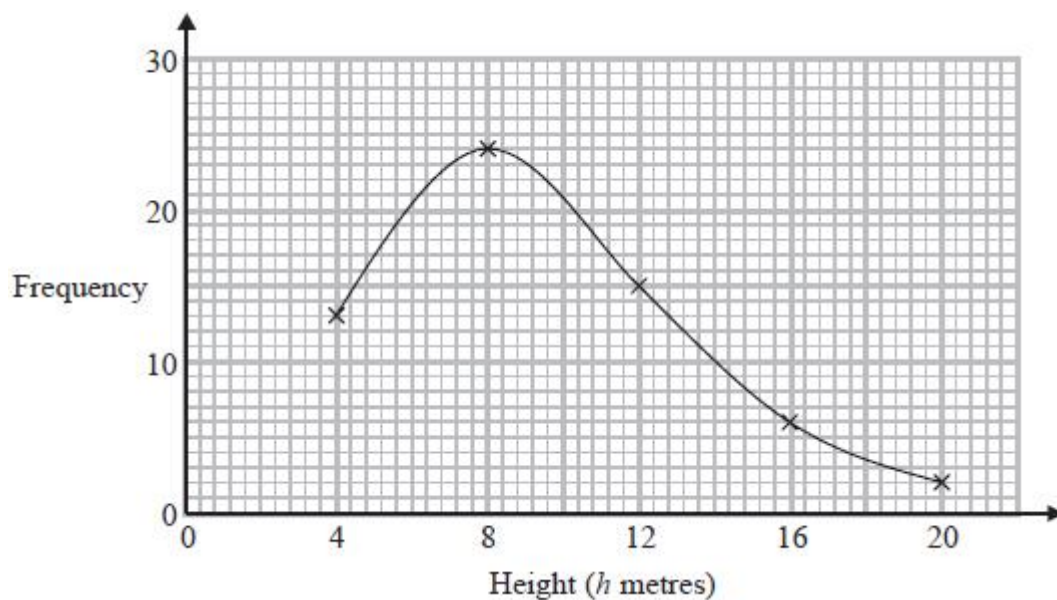
(1)

(Total for Question 2 is 4 marks)

3 The table shows the heights of 60 trees

Height (h metres)	Frequency
$0 < h \leq 4$	13
$4 < h \leq 8$	24
$8 < h \leq 12$	15
$12 < h \leq 16$	6
$16 < h \leq 20$	2

Freddie plots the frequency polygon below



Write down 2 things that are wrong with this graph

1. _____

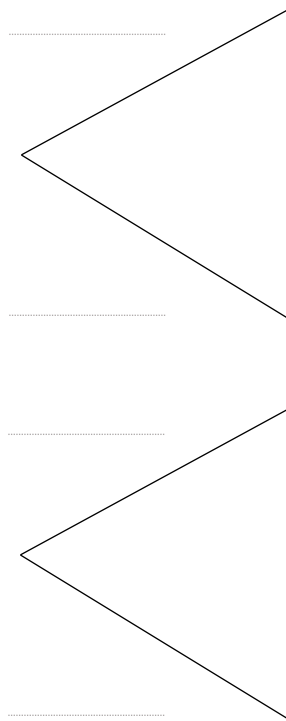
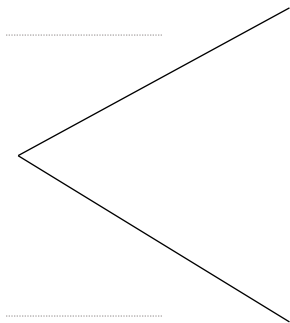
2. _____

(Total for Question 3 is 2 marks)

- 4(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)

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

(2)

(Total for Question 4 is 4 marks)

5 Work out

$$\frac{(3.1 \times 10^3) + (2.4 \times 10^{-2})}{(4.2 \times 10^2)}$$

Giving your answer in standard form, correct to 3 significant figures.

(Total for Question 5 is 2 marks)

6 Simplify fully

$$(4a^4bc^{-3})^5$$

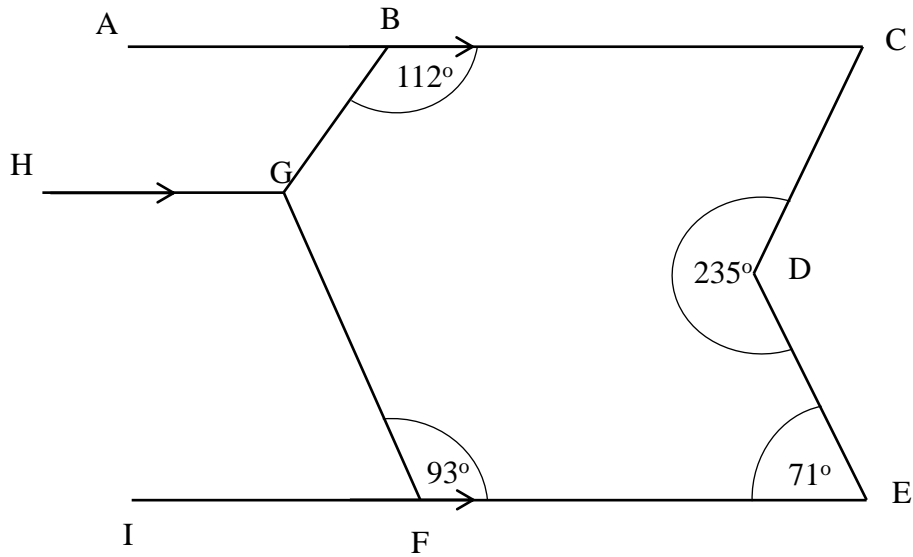
(Total for Question 6 is 2 marks)

- 7 Martha invests £15200.
She earns $x\%$ for the first year.
At the end of the first year she has a total of £15656.

For the next 2 years, Martha earns $2x\%$.
Work out the total of her investment at the end of the third year.

(Total for Question 7 is 3 marks)

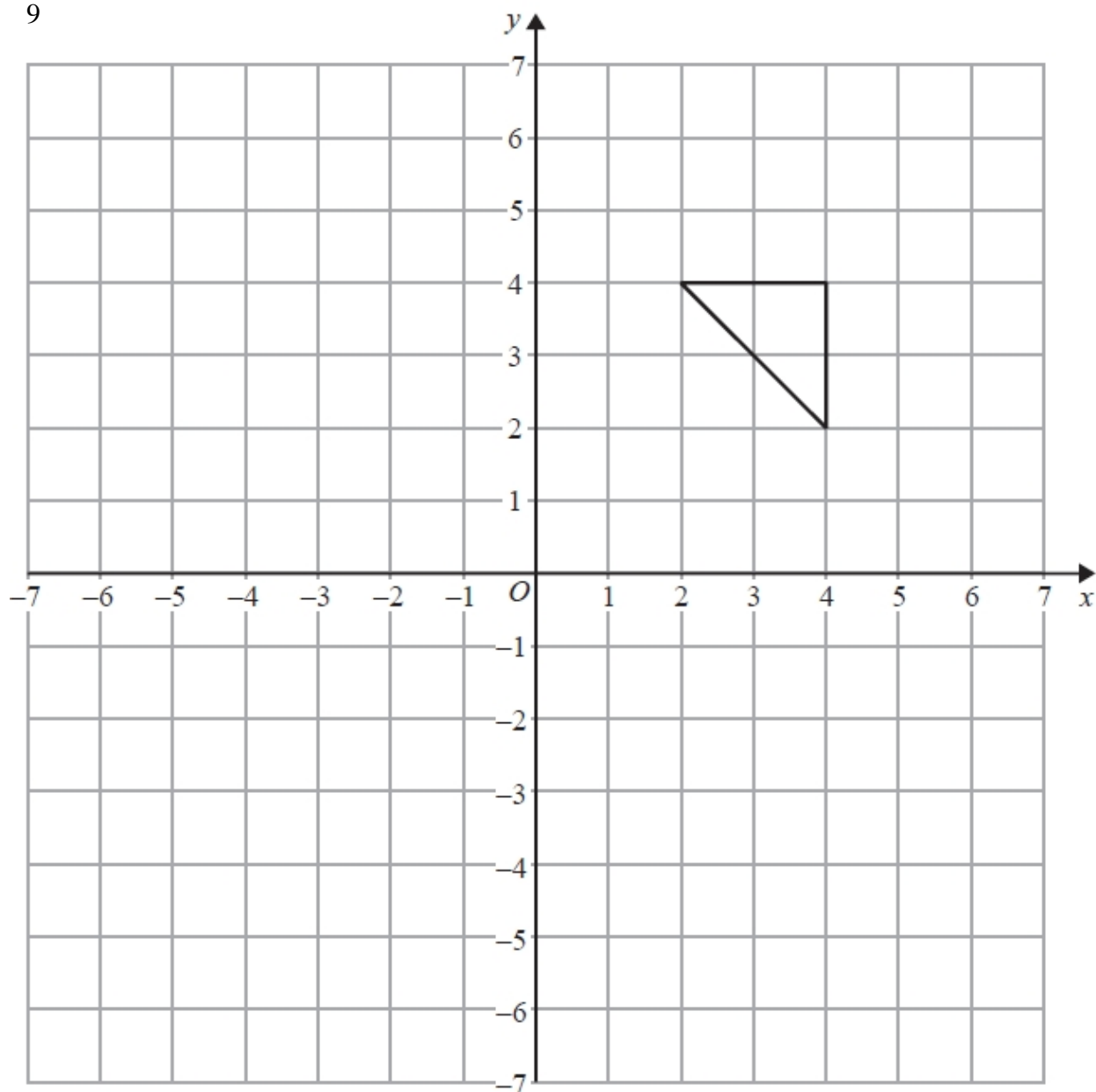
- 8 Shape BCDEFG is an irregular hexagon.
Lines AC, HG & IE are parallel.



Work out the size of angle BCD

(Total for Question 8 is 4 marks)

9



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

(2)

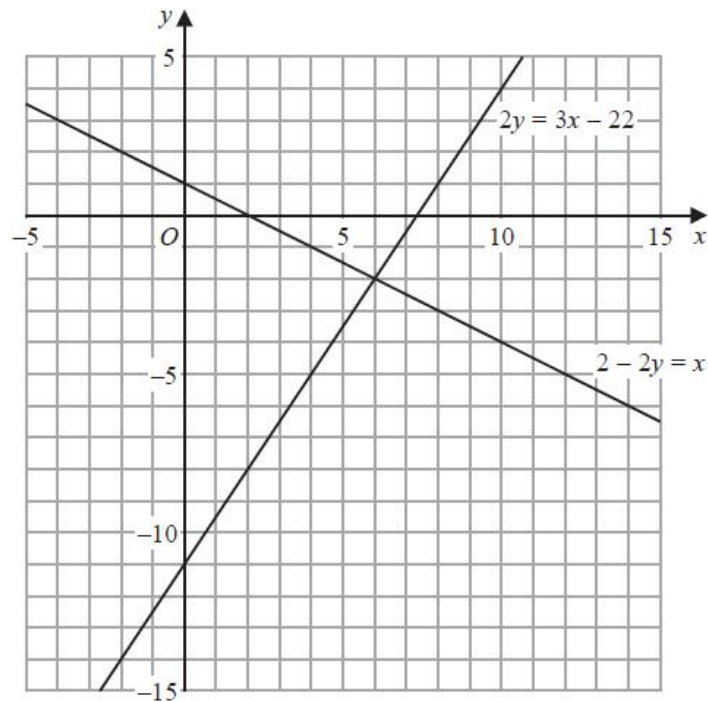
(Total for Question 9 is 2 marks)

- 10 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 10 is 3 marks)

11



Use the graph to solve the simultaneous equations

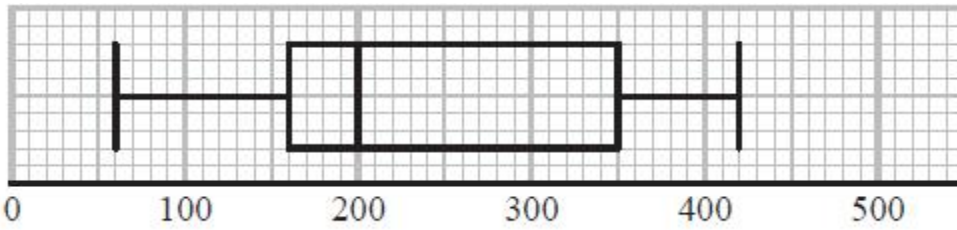
$$\begin{aligned} 2 - 2y &= x \\ 2y &= 3x - 22 \end{aligned}$$

$x =$

$y =$

(Total for Question 11 is 1 mark)

- 12 The box plot shows information about the sales, in thousands of pounds, of Bennett's Bistro

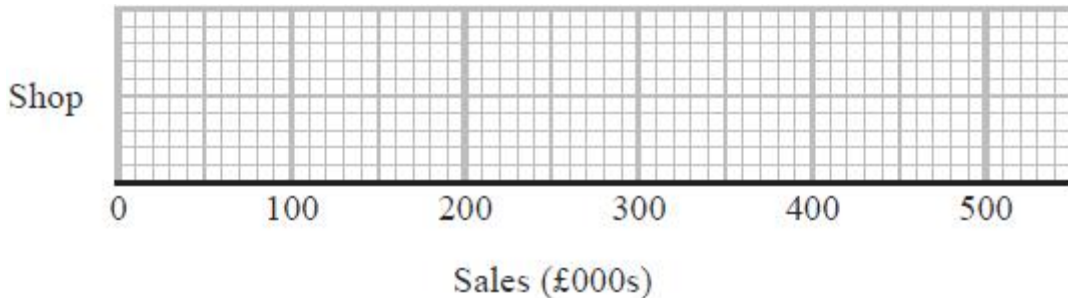


Margot says,
'50% of the sales data is below £210,000 as the highest value is £420,000'
Margot is wrong.
(a) Explain why.

	Sales (£000s)
least value	30
lower quartile	80
median	170
upper quartile	260
greatest value	350

(1)

12(b) On the grid below, draw a box plot for the information given above about the sales from Buckley's Cafe



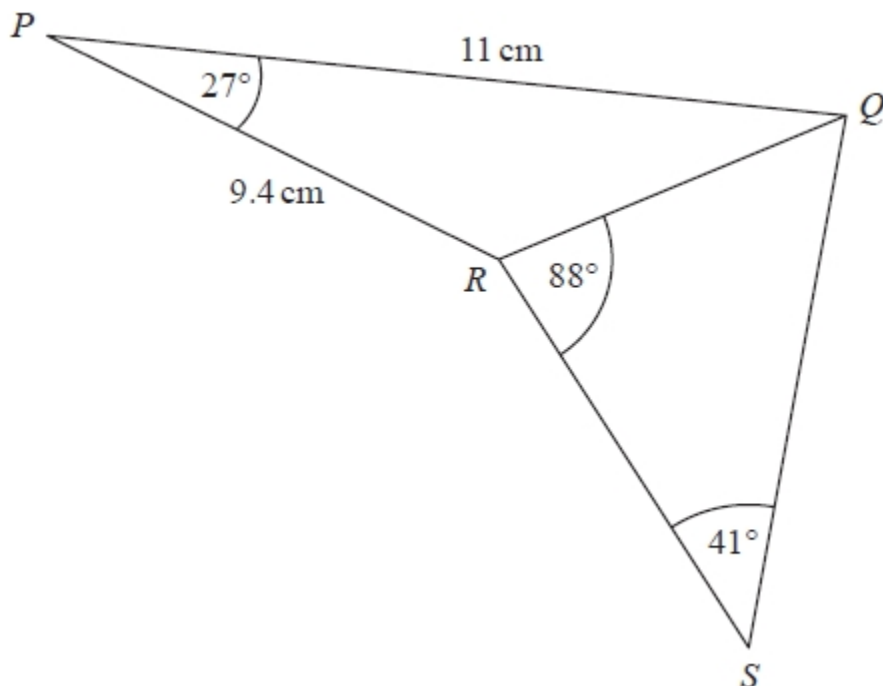
(2)

12(c) Compare the distributions of the sales of both eateries.

(2)

(Total for Question 12 is 5 marks)

13 PQR and QRS are triangles



Calculate the length of RS.

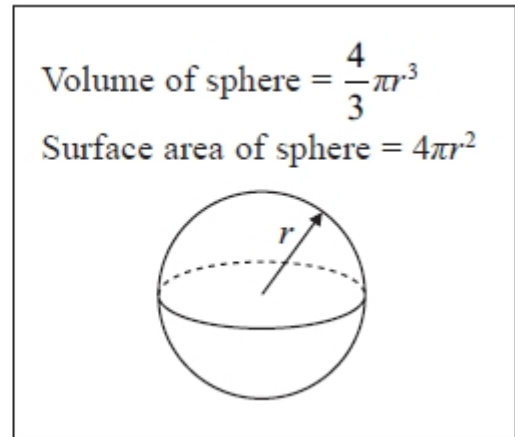
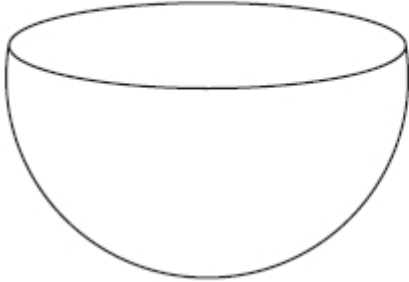
Give your answer correct to 3 significant figures.

You must show all of your working

_____ cm

(Total for Question 13 is 4 marks)

- 14 The diagram shows a solid hemisphere



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

(2)

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

(1)

(Total for Question 14 is 3 marks)

- 15 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 15 is 2 marks)

- 16 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 16 is 3 marks)

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

4, 13, 26, 43

Write down an expression, in terms of n , for the n th term of the sequence

(Total for Question 17 is 3 marks)

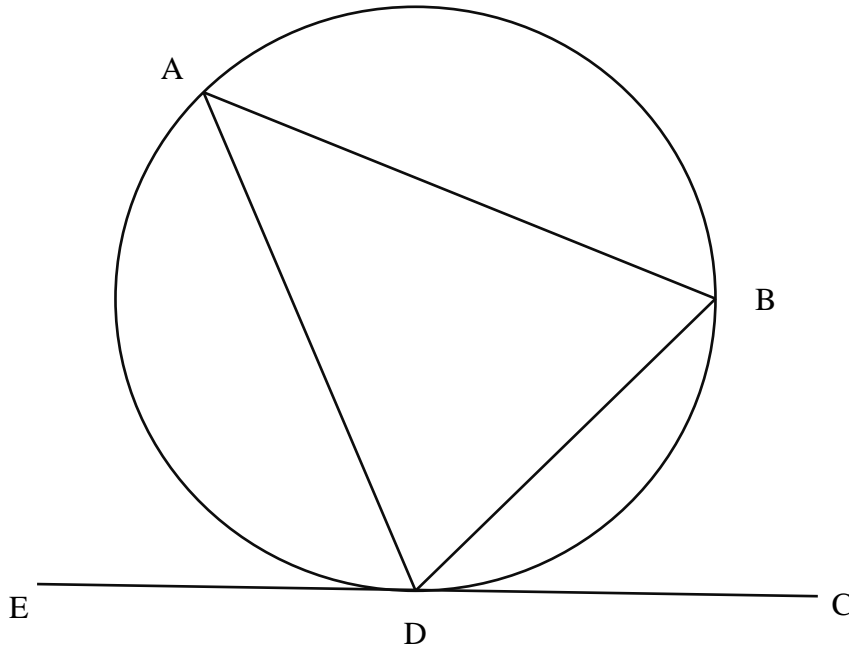
18 Solve

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

Give your answers correct to 3 significant figures

(Total for Question 18 is 5 marks)

19



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 19 is 4 marks)

20 $f(x) = 3x^2 - 2$ $g(x) = 2x + 3$

(a) Find $fg(2)$

(2)

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

(2)

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

(4)

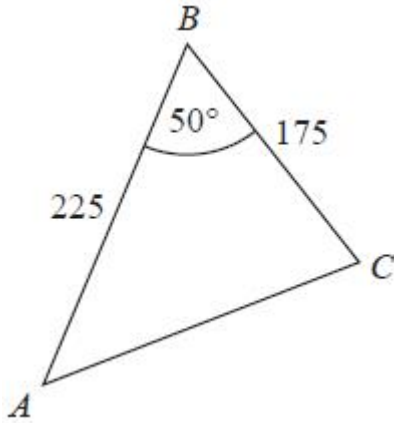
(Total for Question 20 is 8 marks)

21 Prove algebraically that the sum of the cubes of two consecutive odd numbers is always even.

You must show all your workings.

(Total for Question 21 is 3 marks)

22 Anya measures a field.



The length AB measures 225m correct to the nearest 5m

The length BC measures 175m correct to the nearest 5m

Angle ABC measures 50° correct to the nearest degree.

Work out the upper bound for the area of the field.

You must show your working.

(Total for Question 22 is 3 marks)

23 Solve algebraically the simultaneous equations

$$\begin{aligned}2x^2 - y^2 &= 17 \\ x &= 1 - 2y\end{aligned}$$

(Total for Question 23 is 4 marks)

Total for this paper is 80 marks