Candidate surname	Other names

Maths Planner

Edexcel

2024 Practice Paper

Mathematics

PAPER 3 (Calculator)

Higher Tier

Time 1 hour 30 minutes

Caution: These topics are not guaranteed to show up, please focus on all topic areas. They have been selected using analysis on previous official exam papers.

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Total Marks

80

Q	Topic(s)	Marks
1	Factorising / Change the Subject	/ 4
2	Standard Form	/ 4
3	Angles in Parallel Lines	/ 4
4	Box Plots	/ 6
5	Laws of Indices	/ 6
6	Combining Ratios	/ 3
7	Mean from Frequency Table / Frequency Polygons	/ 5
8	Volume & Surface Area	/ 4
9	Graphical Simultaneous Equations	/ 1
10	Product Rule for Counting	/ 2
11	Compound Interest	/ 4
12	Angles in Polygons	/ 2
13	Calculating with Speed / Bounds	/ 4

Q	Topic(s)	Marks
14	MDV / PFA	/ 3
15	2D Trigonometry and Pythagoras	/ 4
16	Successive Probability	/ 5
17	Algebraic Fractions	/ 6
18	Circle Theorems	/ 4
19	Non-right Triangles	/ 5
20	Functions	/ 4

Student Warning

These topics are not guaranteed to show up in your Paper 3 exam. Please make sure to revise all topic areas, especially since topics covered in Paper 1 and 2 can still come up.

These questions have been selected using analysis on previous official exam papers.

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Student Warning

The questions in this paper will not be in the exam

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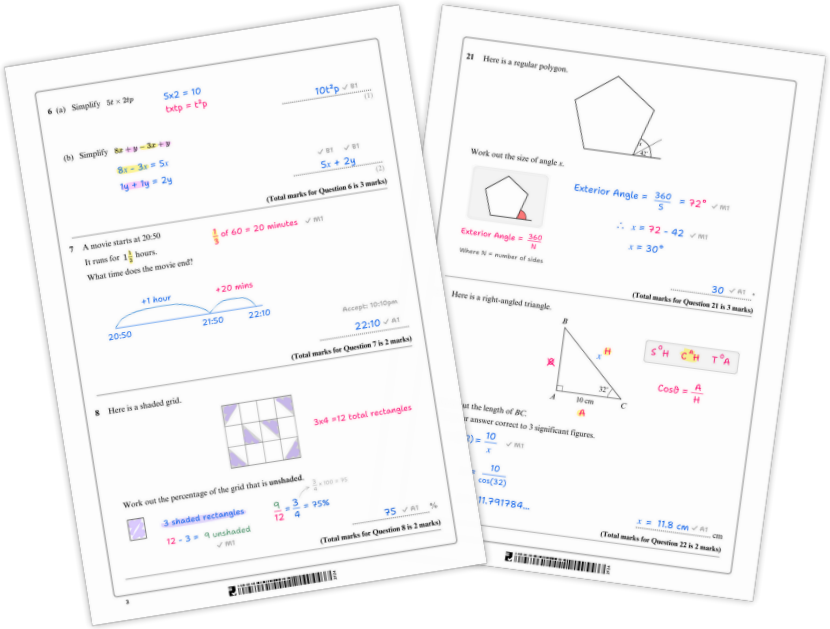
Worked Solutions



Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in you working.

1 (a) Factorise $3x^2 + 12xy$

.....

(2)

(b) $a = 2b + c^2$

Make b the subject.

.....

(2)

(Total marks for Question 1 is 4 marks)

---

2 (a) Write 5×10^{-5} as an ordinary number.

.....

(1)

(b) Write 830×10^6 in standard form.

.....

(1)

(c) Work out $5.1 \times 10^5 - 3.1 \times 10^3$

Give your answer in standard form.

.....

(2)

(Total marks for Question 2 is 4 marks)

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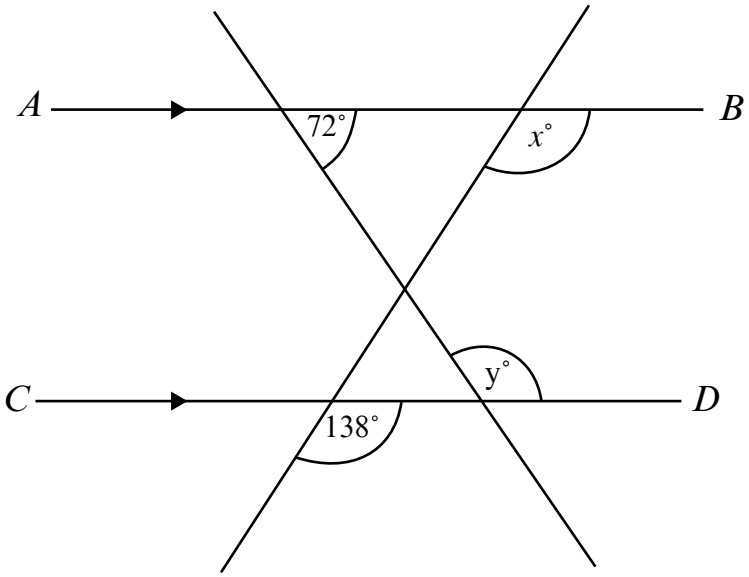
3 AB and BC are parallel lines.

Not drawn accurately



(a) Work out the size of angle x.

°

.....

(1)

(b) Give a reason for your answer.

.....

.....

(1)

(c) Work out the size of angle y.

°

.....

(1)

(d) Give a reason for your answer.

.....

.....

(1)

(Total marks for Question 3 is 4 marks)

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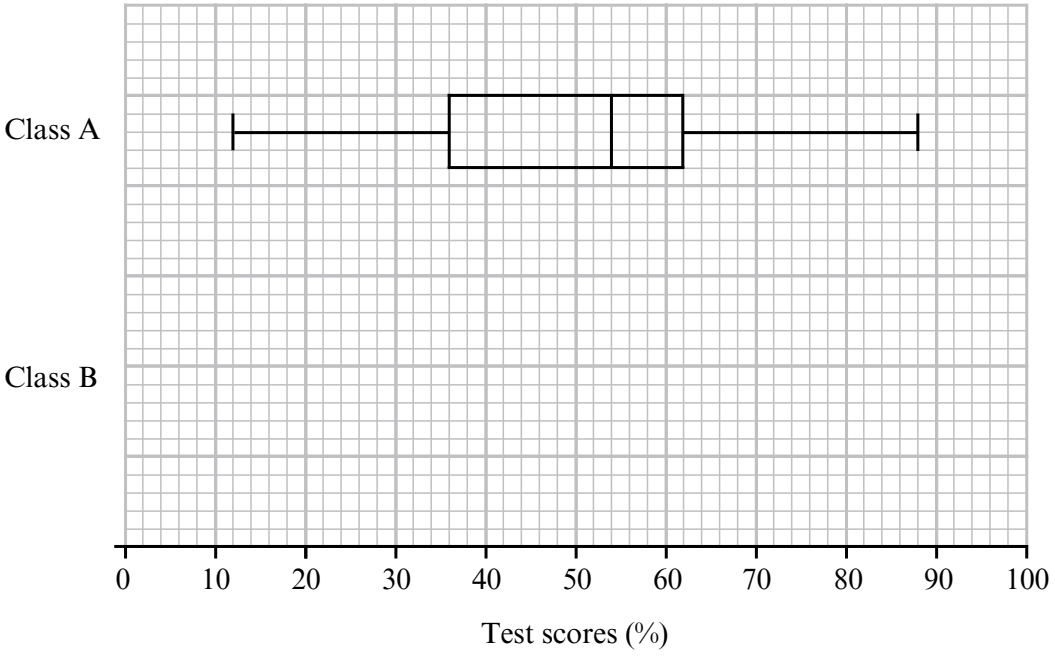
4 The following data represents the scores of students from two different classes on a recent math test. A box plot for Class A is drawn below.



(a) Write down the median test score for Class A.

.....%

(1)

The table below shows information about the distributions of the test scores for Class B.

	Lowest	Interquartile range	Median	Upper quartile	Range
Score (%)	18	24	60	68	56

(b) On the grid above, draw a box plot for the information in the table. **(3)**

(c) Compare the distribution of the test scores for Class A with the distributions of the test scores for Class B.

.....

.....

.....

.....

(2)

(Total marks for Question 4 is 6 marks)

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5 (a) Simplify $a^2 \times a \times a^{-5}$

.....

(1)

(b) Simplify $\dfrac{(4wc^3)^3}{8wc}$

.....

(3)

(c) Write $32^{\frac{1}{2}}$ as a single power of 2.

.....

(2)

(Total marks for Question 5 is 6 marks)

---

6 Given $x : y = 4 : 5$ and $\dfrac{x}{w} = \dfrac{7}{3}$

find the ratio $x : y : w$ in its simplest form.

.....

(Total marks for Question 6 is 3 marks)

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7 The frequency table gives information about the time taken for workers to drive work.

Time (t minutes)	Frequency
$0 < t \leq 10$	5
$10 < t \leq 20$	13
$20 < t \leq 30$	18
$30 < t \leq 40$	4

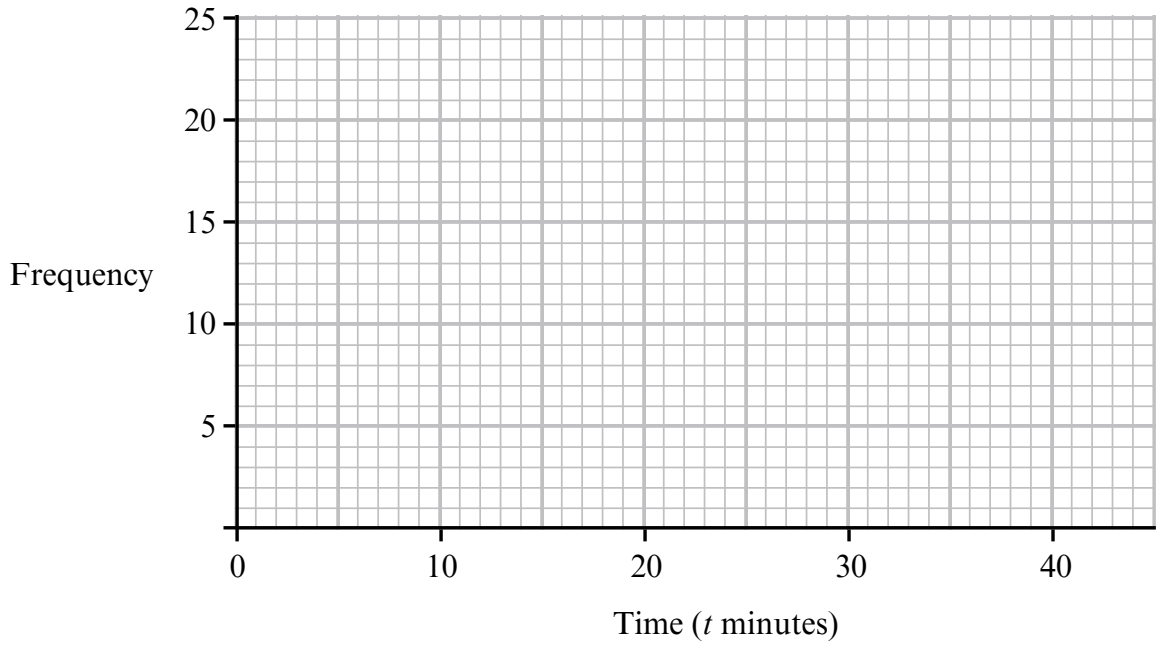
(a) Work out an estimate for the mean time for their drive to work.

(3)

.....

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

(2)



(Total marks for Question 7 is 5 marks)

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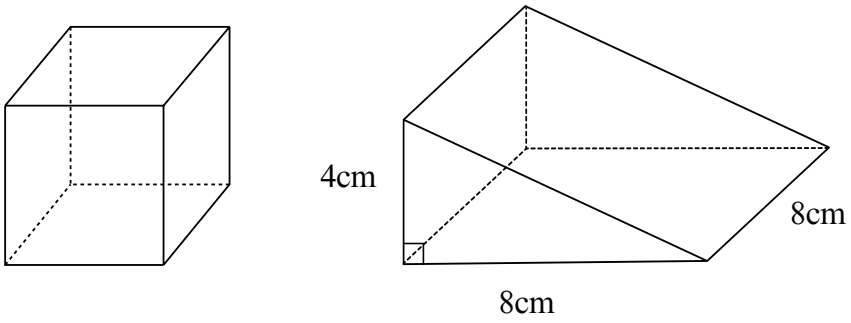
8 Here is a cube and triangular prism.



The volume of the cube is equal to the volume of the triangular prism.
Work out the surface area of the cube.
Give your answer correct to 2 decimal places.

..... cm^2

(Total marks for Question 8 is 4 marks)

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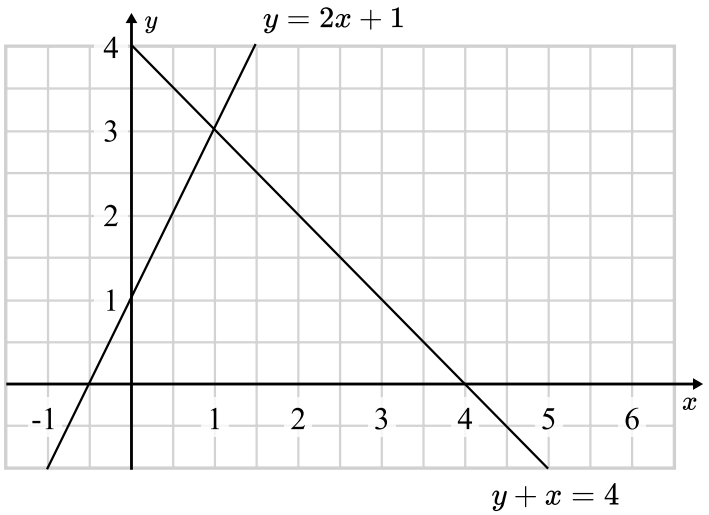
9



Use these graphs to solve the simultaneous equations

$$y = 2x + 1$$

$$y + x = 4$$

$x =$ .....

$y =$ .....

(Total marks for Question 9 is 1 mark)

---

10 Emma is organising a music playlist.
She has 15 different songs and wants to create a playlist with one song from each genre.

There are

5 pop songs
6 rock songs
4 jazz songs

Calculate the number of different ways Emma can choose one pop song, one rock song, and one jazz song for her playlist.

.....

(Total marks for Question 10 is 2 marks)

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11 Henry invests £x in Moomoo Investments for 4 years.
Chloe invests £x in Trading 414 for 2 years.

Moomoo Investments
Compound Interest
3% per annum for the **first** two years 1.8% per annum for each extra year

Trading 414
Compound Interest
5% per annum

At the end of the 4 years, Henry's investment is valued at £54,971.81
Work out the value of Chloe's investment at the end of the 2 years.
Give your answer to the nearest penny.

£.....

(Total marks for Question 11 is 4 marks)

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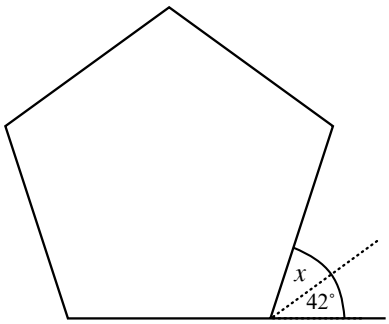
12 Here is a regular polygon.

Not drawn accurately



Work out the size of angle x.

$x =$ ..... °

(Total marks for Question 12 is 2 marks)

13 A car travels a distance of 150 km.
The distance is measured to the nearest 5 km.
The time taken for the journey is 2 hours, measured to the nearest 10 minutes.

Calculate the maximum average speed that car could have travelled.

..... km/h

(Total marks for Question 13 is 4 marks)

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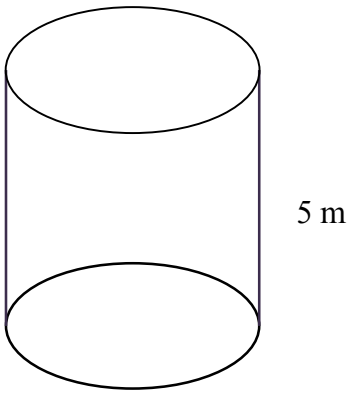
14 The diagram shows a cylinder placed on a horizontal floor.



$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

The cylinder has a height of 5 m

The cylinder has a density of 0.8 kg/m^3 and a mass of 128.68kg

The pressure on the floor due to the prism is 8 newtons/m^2

Work out the force exerted by the cylinder on the floor.

..... newtons

(Total marks for Question 14 is 3 marks)

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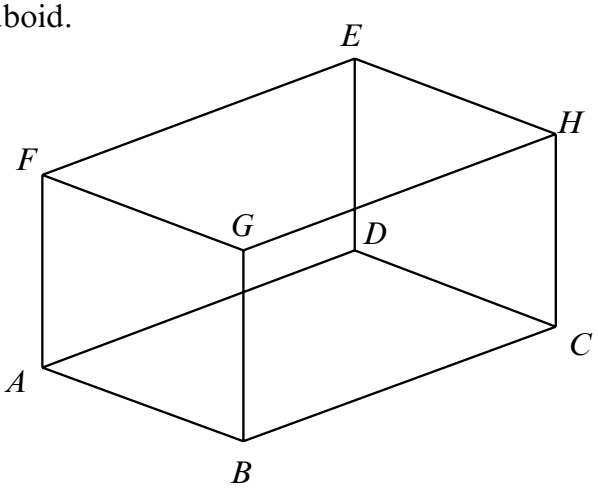
15 *ABCDEFGH* is a cuboid.



The cuboid has a volume of 108 cm²

$AB = 4$ cm

$BC = 9$ cm

Work out the size of angle *CAH*.
Give your answer correct to 1 decimal place.

.....°

(Total marks for Question 15 is 4 marks)

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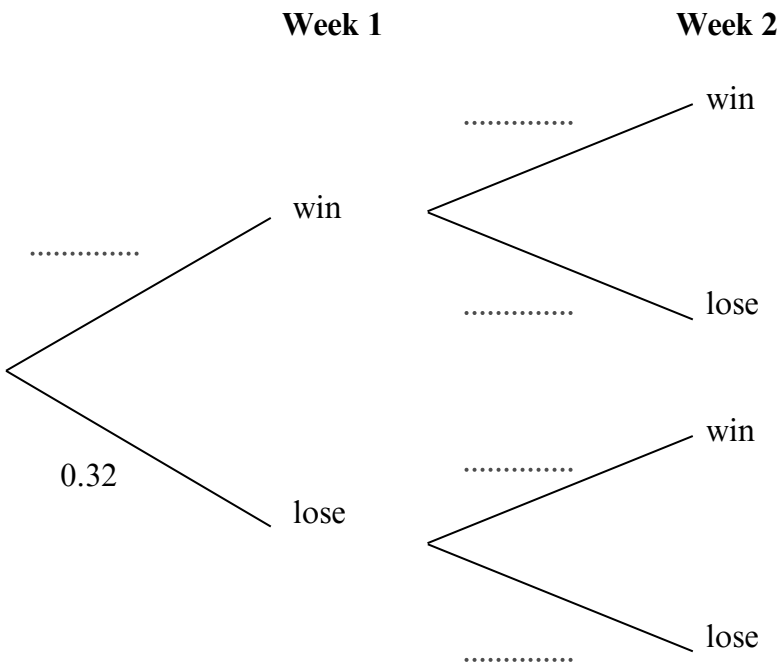
16 A tennis player is playing a game on Week 1 a tournament and another game on Week 2.
The probability that the player will lose on Week 1 is 0.32

If they win on Week 1, the probability that they will win on Week 2 is 0.83
If they lose on Week 1, the probability that they will win on Week 2 is 0.45

(a) Complete the probability tree diagram.

(2)



(b) Estimate the probability that the team will win at least one match.

.....

(3)

(Total marks for Question 16 is 5 marks)

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17 (a) Write $\frac{3}{x-3} - \frac{5}{2x}$ as a single simplified fraction.

.....

(2)

(b) Given $5a - 1 : a + 9 = 2a - 3 : a + 7$

Find possible values for a.

.....

(4)

(Total marks for Question 17 is 6 marks)

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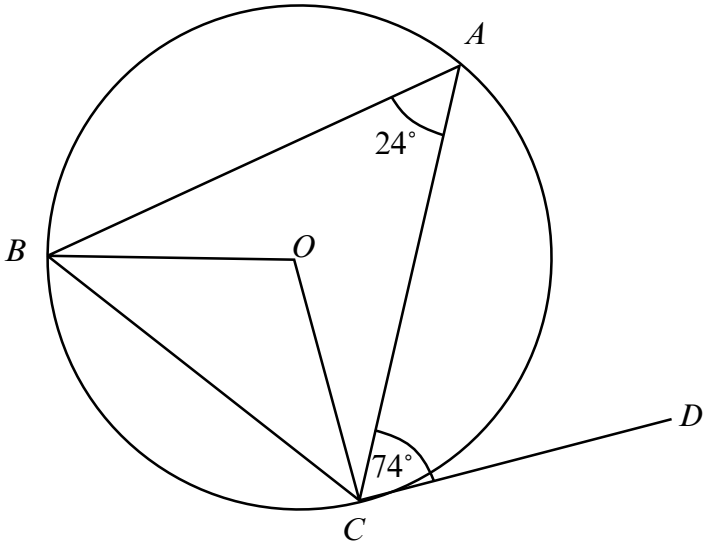
18 *A, B* and *C* are points on a circle, centre *O*

CD is a tangent to the circle.



Work out the ratio of angle *ACO* : angle *ABO*
Give your answer in its simplest form.

.....

(Total marks for Question 18 is 4 marks)

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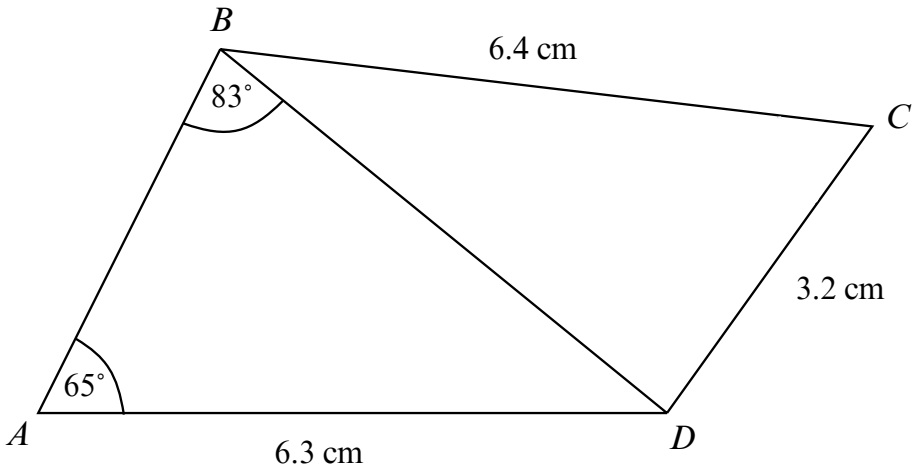
19 $ABCD$ is a quadrilateral.



Work out the area of triangle BCD.
Give your answer correct to 2 significant figures.

..... cm^2

(Total marks for Question 19 is 5 marks)

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20 f and g are functions such that,

$$f(x) = \frac{4}{\sqrt{x}} \qquad \text{and} \qquad g(x) = 4x + 1$$

Given $h(x) = fg(x)$

Work out the value of $h^{-1}(3)$

Give your answer in exact form.

.....

(Total marks for Question 20 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS

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