THIRD SPACE LEARNING

Mathematics Paper 1 (Non-Calculator) Higher Tier

Edexcel GCSE

SET 5

For teachers

Students are marking a completed paper rather than sitting it, so there is no time limit. Use the separate mark scheme to check their decisions and the marks they award.

- **Whole class:** display a page and mark it together, pausing to discuss each error.
- **In pairs:** one student marks while the other checks against the mark scheme, then they swap.
- **Independent revision or intervention:** students answer the questions themselves first, or focus on the topics they need to revisit.

This paper is based on the topics in the advance information for the November 2026 exam series. It is not possible to predict the content of the real exams, so students should continue to revise the full specification.

Instructions

A student has sat this practice paper. Some of their answers are correct, but others contain mistakes – in the method, the working or the final answer.

Work through the paper as if you were the examiner:

- Decide whether each answer is correct or incorrect.
- For each incorrect answer, find the point where the mistake happens and explain what went wrong.
- Write out the correct working and answer.
- Use the mark scheme to check your decisions and award the marks the student would have earned.

Not every answer is wrong, so be ready to explain why a correct answer is correct.

Mathematics Paper 1 (Non-Calculator) Higher Tier Edexcel GCSE SET 5

Name

Total marks

Paper length: 1hr 30mins



Question	Mark
1	
2	
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17	
18	
19	
21	

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 not be used.

Information

- The total mark for this paper is 80
- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.

Advice

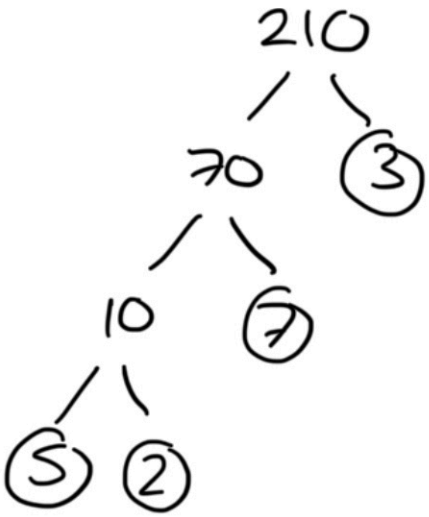
- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

This practice paper is based on the topics from the **advanced information for the November 2026 exam series.**

Please note, this practice paper is an example to help revision, these topics can be tested in other ways and other topics may be included in the actual papers

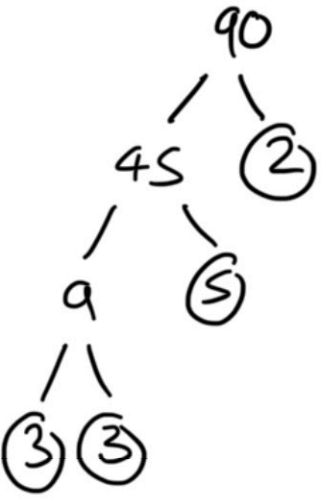
1 **(a)** Write 210 as a product of its prime factors.

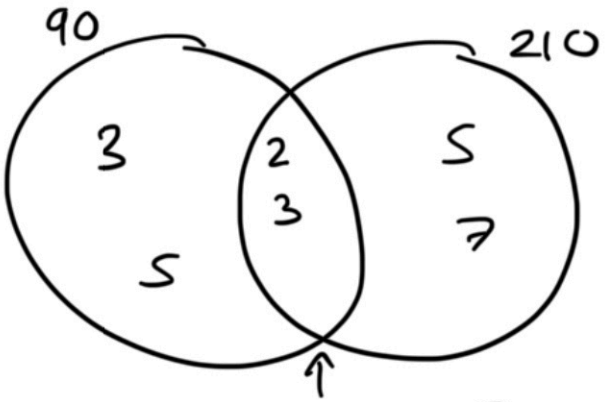


$2 \times 3 \times 5 \times 7$

(2)

(b) Find the highest common factor (HCF) of 210 and 90





$210 = 2 \times 3 \times 5 \times 7$

$90 = 2 \times 3 \times 3 \times 5$

6

(2)

(Total for Question 1 is 4 marks)

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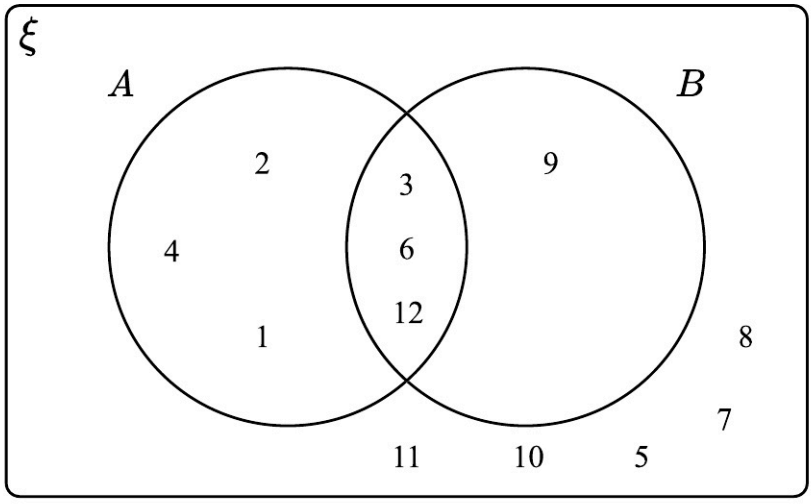
2 Here is a Venn diagram



(a) Write down the numbers that are in the set A'

1, 2, 3, 4, 6, 1

(1)

(b) A number is chosen at random from the universal set.

Find the probability that the number is in the set A ∩ B

3

(2)

(Total for Question 2 is 3 marks)

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3 Write these numbers in order of size, starting with the smallest.

3.15×10^4	3.15×10^{-2}	3.15×10^{-1}	3150
31500	0.315	3.15	3150

0.315 3.15 3150 31500

(Total for Question 3 is 2 marks)

---

4 Work out $1\frac{3}{4} + 2\frac{1}{3}$

Give your answer as a mixed number in its simplest form.

$1 + 2 = 3$

$\frac{3}{4} + \frac{1}{3} = \frac{9}{12} + \frac{4}{12} = \frac{13}{12}$

$3\frac{13}{12}$

(Total for Question 4 is 2 marks)

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5 In a sale, prices are reduced by 40%

The sale price of a laptop is £360

Work out the original price of the laptop.

£360 = 40%

£90 = 10%

£900 = 100%

£ 900

(Total for Question 5 is 2 marks)

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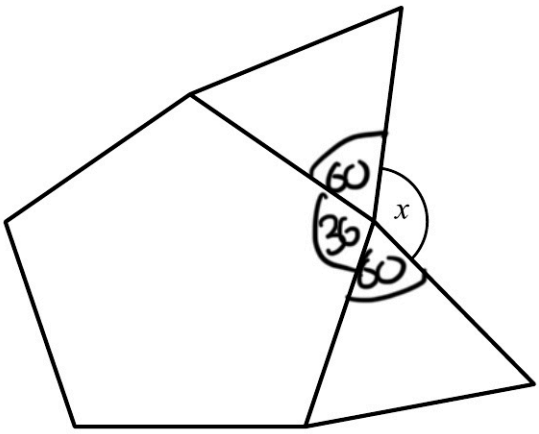
6 Here is a regular pentagon and two equilateral triangles.



Show that angle x is 132°

interior angle of pentagon = $\frac{180}{5}$ = 36

interior angle of equ. triangle = 60

60 + 60 + 36 = 156

180 − 156 = 24

$x = 24$

(Total for Question 6 is 3 marks)

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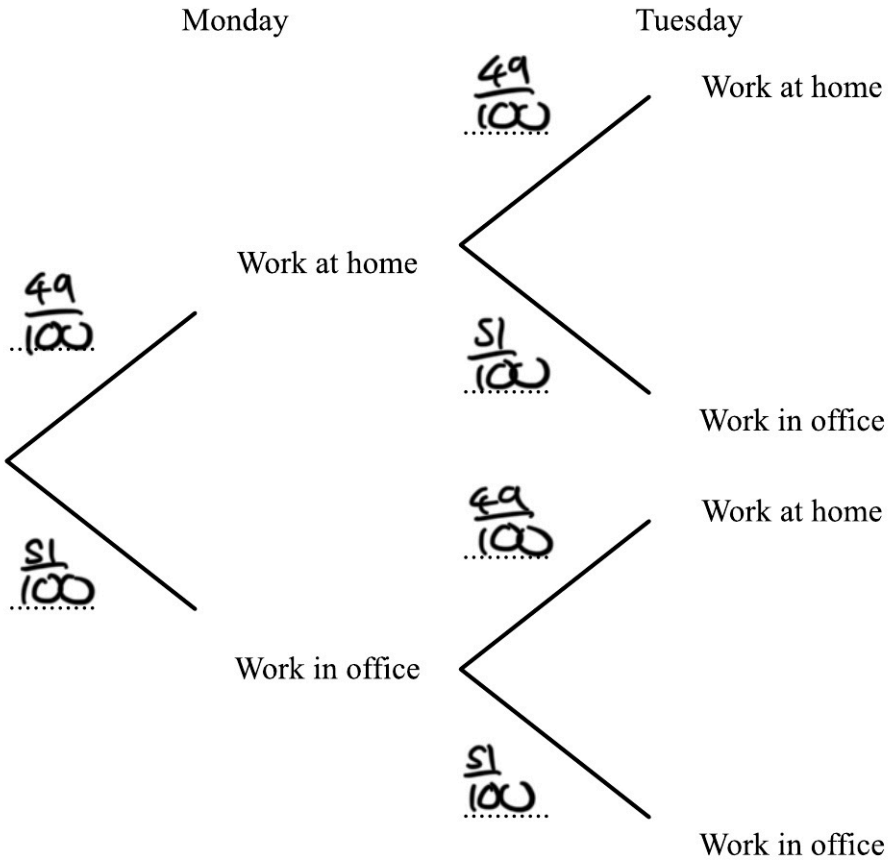
7 The probability that Faraz will work from home on any given day is p

The probability that Faraz works at home on Monday and Tuesday is $\frac{49}{100}$



(a) Complete the tree diagram.

(3)

(b) Work out the probability that Faraz works in the office on exactly one of the two days.

51/100

(3)

(Total for Question 7 is 6 marks)

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8 **(a)** Work out the value of $\frac{5^5 \times 5^{-2}}{5}$ $= \frac{5^3}{5} = 5^2$

25

(2)

(b) Find the value of 2^{-3}

-8

(1)

(c) Find the value of $125^{\frac{1}{3}}$ $= \sqrt[3]{125} =$

25

(1)

(Total for Question 8 is 4 marks)

---

9 Solve $x^2 = 3x + 10$

$x^2 - 3x - 10 = 0$

$(x - 5)(x - 2) = 0$

$x - 5 = 0$ $\quad x - 2 = 0$

$x = 5$ $\quad x = 2$

$x = 5, \; x = 2$

(Total for Question 9 is 3 marks)

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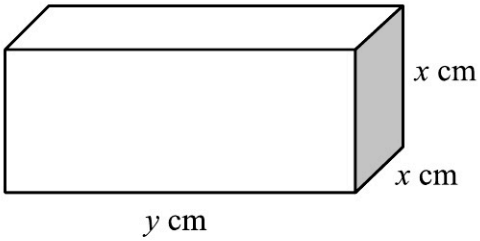
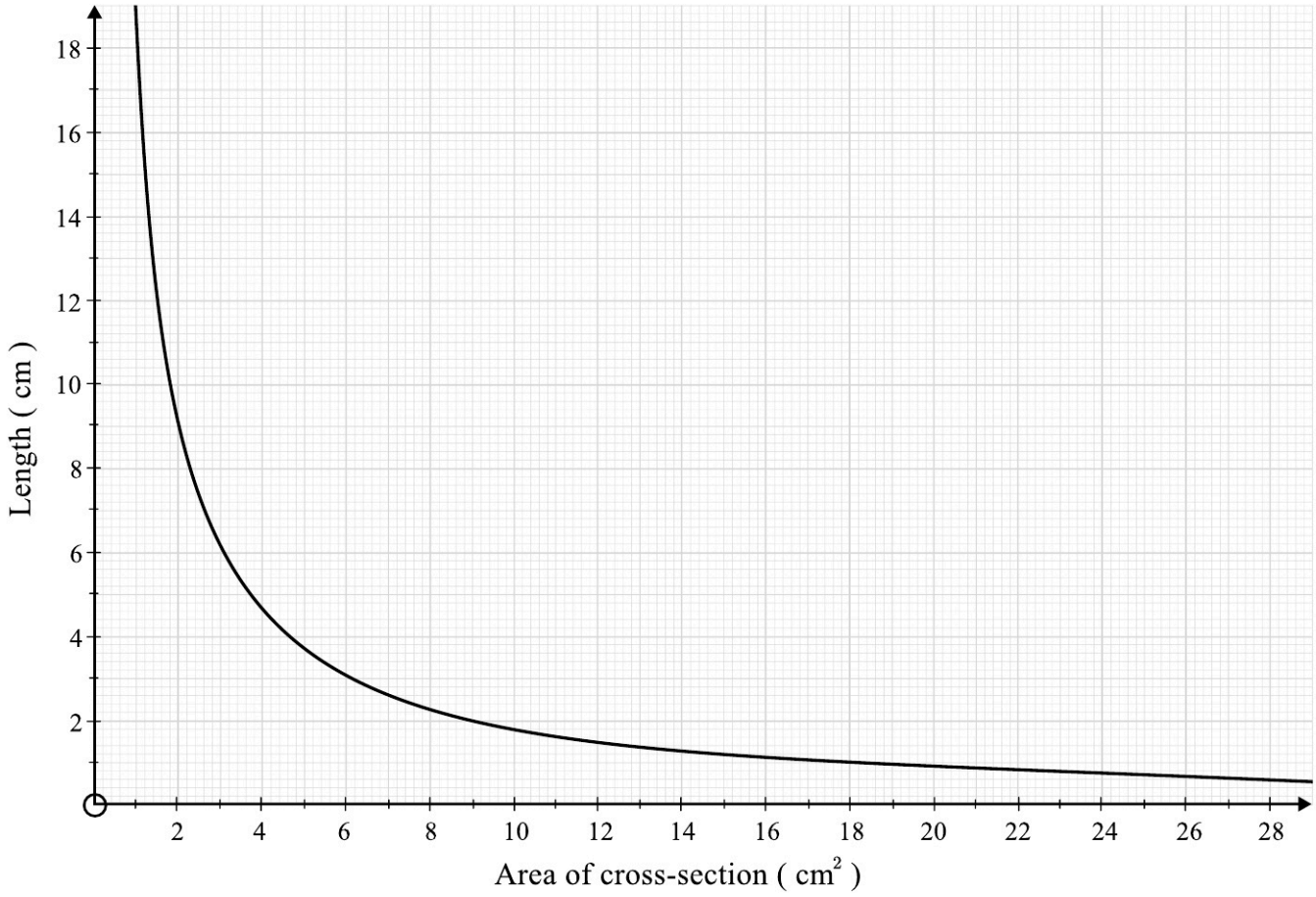
10 Here is a cuboid with a square cross-section.



The cuboid has a fixed volume, V cm^3.

This graph shows some information about the cuboid.



(a) Use the graph to complete this table:

Area of cross-section	1	2	3	6	12	1
Length	18	9	6	3	1·5	1

(2)

(b) Write down the volume, V, of the cuboid.

18 cm^3

(1)

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(c) Work out the surface area of the cuboid when the length of the cuboid is 2cm.

Length = 2

Area of cross section = 9

$x = \sqrt{9} = 3$

Surface area = $2 \times 9 + 2 \times 3$

= 24

cm^2

(4)

(Total for Question 10 is 7 marks)

---

11 Richard and Jamie coach a football team.

This year they have taken the training sessions in the ratio 11:14.

Jamie says he has taken more than 60% of the coaching sessions.

Is Jamie correct?

Show how you decide.

No he is not correct because $\frac{11}{14}$ is less than 60%

(Total for Question 11 is 3 marks)

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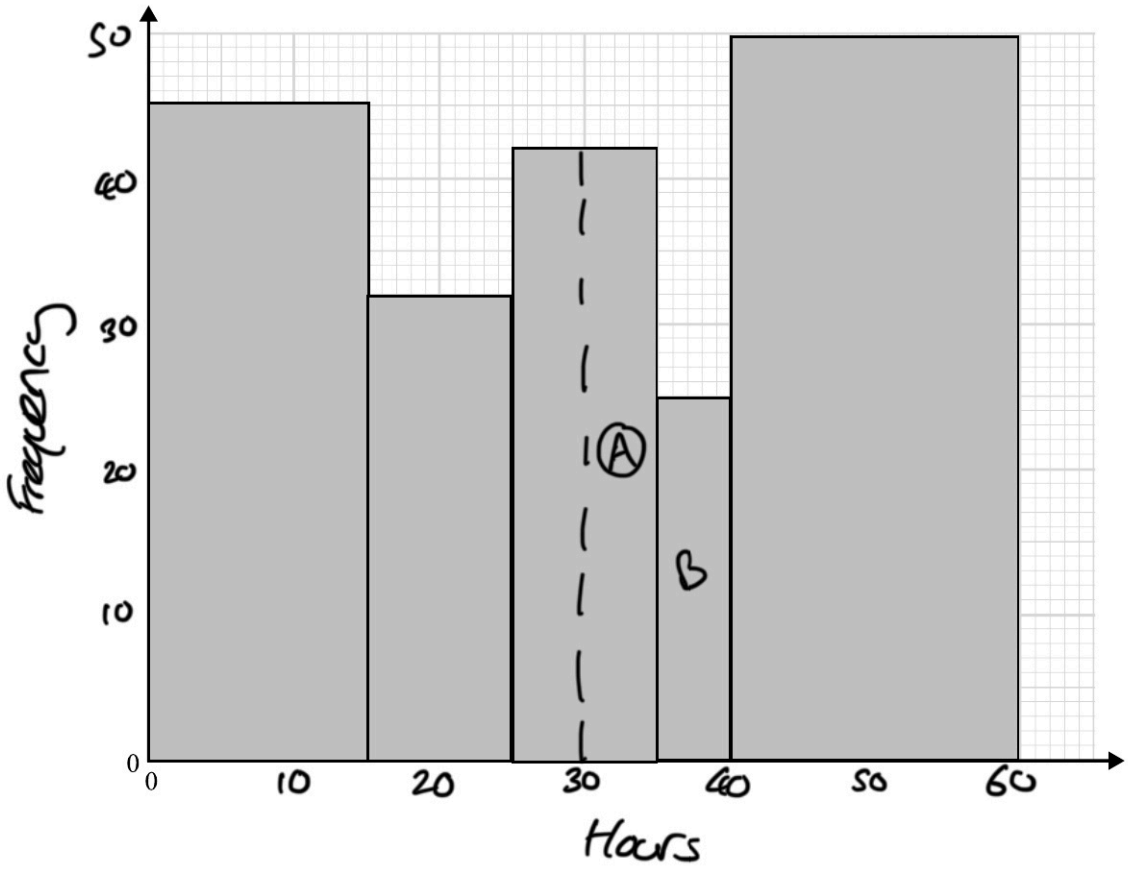
12 The table shows information about the number of hours worked in a week by some adults.

Number of hours (h)	Frequency
$0 \leq h < 15$	45
$15 \leq h < 25$	32
$25 \leq h < 35$	42
$35 \leq h < 40$	25
$40 \leq h < 60$	50

(a) On the grid draw a histogram to show this information.



(3)

(b) Work out an estimate for the fraction of these adults who work between 30 and 40 hours.

Area A = 5 × 42 = 210

Area B = 5 × 25 = 125

$$\begin{array}{r} 210 \\ +\ 125 \\ \hline 335 \end{array}$$

335

(2)

(Total for Question 12 is 5 marks)

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13 Work out $0.6\dot{8} - 0.1\dot{2}$

Give your answer as a fraction in its simplest form.

$$\begin{array}{r} 0.6888\ldots \\ -\ 0.1222\ldots \\ \hline 0.5666\ldots \end{array}$$

$$\begin{aligned} x &= 0.5666\ldots \\ 10x &= 5.666\ldots \\ \hline 9x &= 5 \\ x &= \frac{5}{9} \end{aligned}$$

$\frac{5}{9}$

(Total for Question 13 is 4 marks)

---

14 y is directly proportional to x^2

When $x = 10$, $y = 36$

Work out the value of y when $x = 3$

$$\begin{aligned} y &\propto x^2 \\ y &= kx^2 \\ 36 &= 100k \\ 0.36 &= k \\ y &= 0.36x \end{aligned}$$

$$\begin{aligned} x &= 3 \\ y &= 0.36 \times 3 \\ y &= 1.08 \end{aligned}$$

1.08

(Total for Question 14 is 3 marks)

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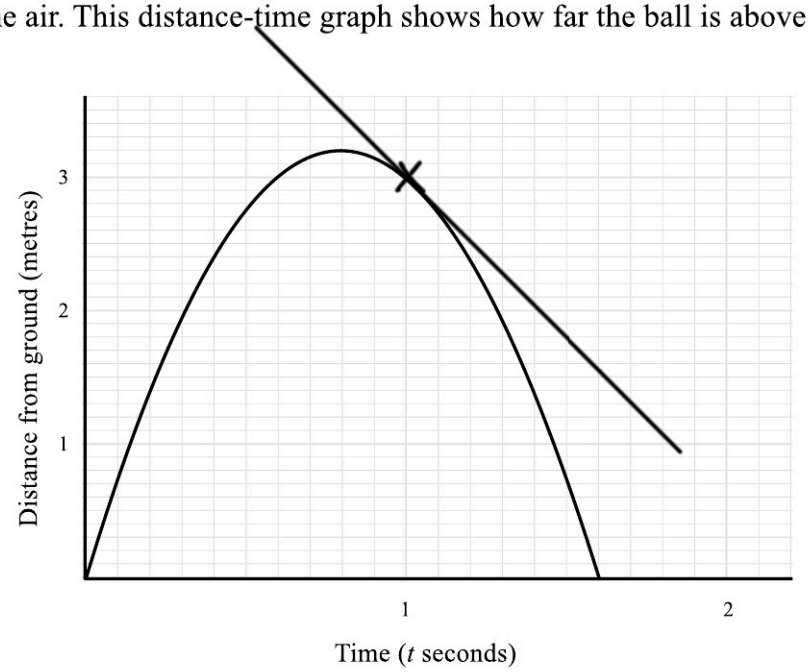
15 A ball is thrown in the air. This distance-time graph shows how far the ball is above the ground.



Work out an estimate for the gradient of the graph when $t = 1$

You must show how you get your answer.

Gradient $= \frac{3}{1} = 3$

3

(Total for Question 15 is 3 marks)

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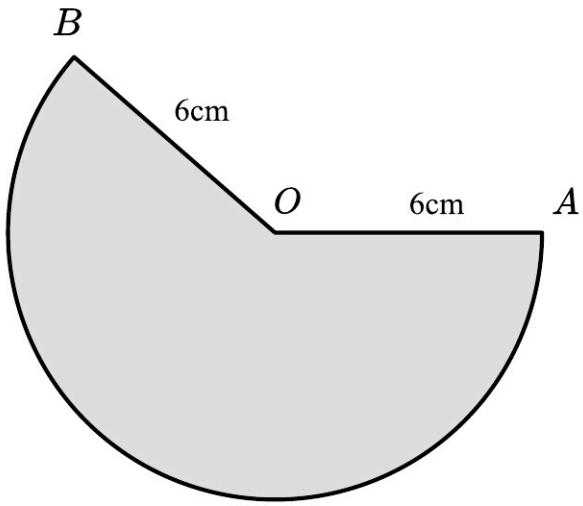
16 *OAB* is a sector of a circle, radius 6cm.



The length of the arc is 7π cm.

Work out, in terms of π, the area of the sector.

Give your answer in its simplest form.

Arc length: $\frac{x}{360} \times \pi d = 7\pi$

$\frac{6x}{360} = 7$

$\frac{x}{60} = 7$

$x = 420$

cm^2

(Total for Question 16 is 4 marks)

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17 Make p the subject of the formula $r = \dfrac{7(2p+1)}{5p-3}$

$$r = \frac{14p+7}{5p-3}$$
$$r(5p-3) = 14p+7$$
$$5pr - 3r = 14p + 7$$
$$5pr - 14p = 3r + 7$$
$$p(5r-14) = 3r+7$$
$$p = \frac{3r+7}{5r-14}$$

(Total for Question 17 is 4 marks)

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18 Lara has some 5p coins and some 10p coins.
The total value of the coins is £2.10.
The ratio of 5p coins:10p coins is 5:1.
Work out how many 5p coins and how many 10p coins Lara has.

$5x + 10y = 210$
$y = 5x$

x is 5p coins
y is 10p coins

$$5x + 10(5x) = 210$$
$$5x + 50x = 210$$
$$55x = 210$$
$$x = \frac{210}{55} = \frac{42}{11}$$

$$y = 5\left(\frac{42}{11}\right) = \frac{210}{11}$$

5p coins: $\frac{42}{11}$

10p coins: $\frac{210}{11}$

(Total for Question 18 is 4 marks)

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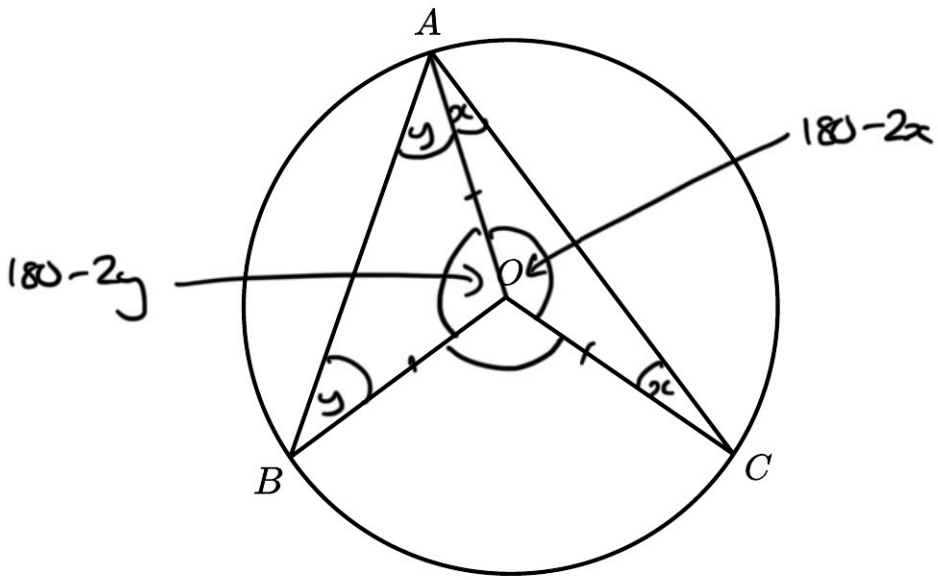
19



Prove that angle *BOC* is double angle *BAC*.

Angle OAC = Angle OCA = x

Angle OAB = Angle OBA = y

Angle AOC = 180 - 2x

Angle AOB = 180 - 2y

Angle BOC = 360 - (180 - 2x) - (180 - 2y)

= 2x + 2y

Angle BAC = x + y

So Angle BOC = 2 × Angle BAC

(Total for Question 19 is 4 marks)

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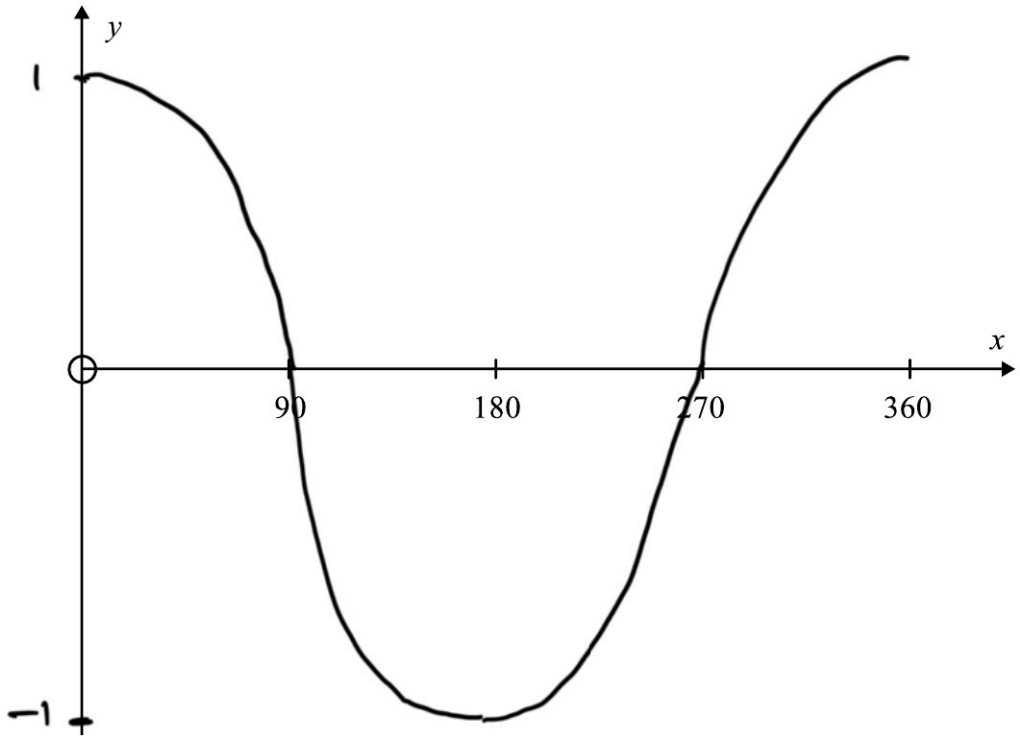
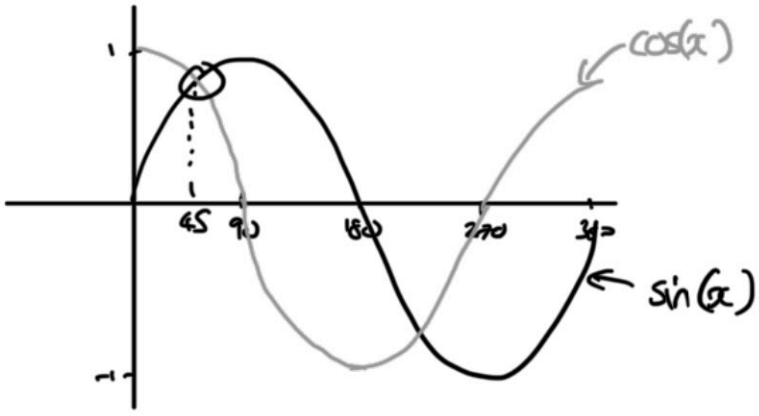
20 **(a)** Sketch the graph of $y = \sin(x)$ for $0 \leq x \leq 360$



(2)

(b) Write down the value of x between 0° and 180° for which $\sin(x) = \cos(x)$



45

(1)

(Total for Question 20 is 3 marks)

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21 The functions f, g and h are such that

$$f(x) = x^2 - 3 \qquad g(x) = 5x - x^2 \qquad h(x) = x + 3$$

(a) Find $h^{-1}(7)$

$y = x + 3$

$y - 3 = x$

$x - 3 = h^{-1}(x)$

$7 - 3 = h^{-1}(7)$

$4 = h^{-1}(7)$

4

(2)

(b) Find the set of values for x such that $f(x) < g(x) < h(x)$

$x^2 - 3 < 5x - x^2$

$2x^2 - 5x - 3 < 0$

$(2x + 1)(x - 3) < 0$

$2x + 1 < 0 \qquad x - 3 < 0$

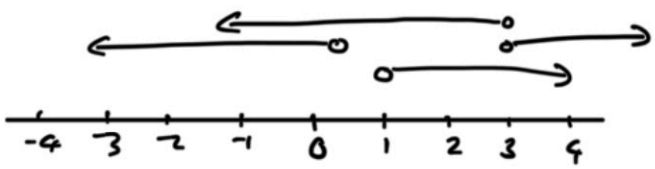
$x < \frac{1}{2}, \qquad x < 3$

$5x - x^2 < x + 3$

$0 < x^2 - 4x + 3$

$0 < (x - 3)(x - 1)$

$3 < x, \quad 1 < x$



$1 < x < 3$

(5)

(Total for Question 21 is 7 marks)

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