

Specimen Paper Answers

Paper 2

Cambridge IGCSE[®] / Cambridge IGCSE[®] (9–1) Mathematics 0580 / 0980

For examination from 2020



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Introduction

The main aim of this booklet is to exemplify standards for those teaching Cambridge IGCSE Mathematics 0580 and Cambridge IGCSE (9–1) Mathematics 0980 and to show examples of very good answers.

This booklet contains answers to Specimen Paper 1 (2020), which has been marked by a Cambridge examiner. Each answer is accompanied by a brief commentary explaining its strengths and weaknesses. These examiner comments indicate where and why marks were awarded and how answers could be improved

The Specimen Paper and mark scheme are available to download from the School Support Hub www.cambridgeinternational.org/support.

2020 Specimen Paper 2

2020 Specimen Paper 2 Mark Scheme

Past exam resources and other teacher support materials are also available on the School Support Hub.

Assessment overview

All candidates take two papers.

Candidates who have studied the Core syllabus content, or who are expected to achieve a grade D (4) or below, should be entered for Paper 1 and Paper 3. These candidates will be eligible for grades C to G (1 to 5).

Candidates who have studied the Extended syllabus content and who are expected to achieve a grade C (5) or above should be entered for Paper 2 and Paper 4. These candidates will be eligible for grades A* to E (3 to 9).

Core candidates take:

Paper 1 (Core)	1 hour 35%
56 marks	
Short-answer questions	
Questions will be based on the Core curriculum	
Externally assessed	

Extended candidates take:

Paper 2 (Extended)	1 hour 30 minutes 35%
70 marks	
Short-answer questions	
Questions will be based on the Extended curriculum	
Externally assessed	

and:

Paper 3 (Core)	2 hours 65%
104 marks	
Structured questions	
Questions will be based on the Core curriculum	
Externally assessed	

and:

Paper 4 (Extended)	2 hours 30 minutes 65%
130 marks	
Structured questions	
Questions will be based on the Extended curriculum	
Externally assessed	

- Candidates should have a scientific calculator for all papers.
- Three significant figures will be required in answers (or one decimal place for answers in degrees) except where otherwise stated.
- Candidates should use the value of π from their calculator or the value of 3.142.

Question 1

Specimen answer

- 1 A train leaves Zurich at 2240 and arrives in Vienna at 0732 the next day.

Work out the time the train takes.

$$22\ 40 \xrightarrow{1\ \text{h}\ 20\ \text{m}} 24\ 00 \xrightarrow{7\ \text{h}\ 32\ \text{m}} 07\ 32$$

$$\begin{array}{r} 1\ 20 \\ 7\ 32 \\ \hline 8\ 52 \end{array}$$

$$\dots\dots\dots 8 \dots\dots\dots \text{h} \dots\dots\dots 52 \dots\dots\dots \text{min} [1]$$

Examiner comment

The method used here is generally the one which works the best. Some candidates will count to 2300 then to 2400 and finally to 0732, then add the time portions 20 min + 1 hour + 7 hr 32 mins = 8 hr 52 mins.

Mark awarded = 1 out of 1

Question 2

Specimen answer

2 In a box of 80 glasses, 3 are broken.

Work out the percentage of broken glasses in the box.

$$\frac{3}{80} \times 100 = 3.75$$

..... 3.75 % [1]

Examiner comment

The key is to write the fraction first, $\frac{3}{80}$, and then turn the fraction into a percentage by multiplying by 100 to get 3.75.

Mark awarded = 1 out of 1

Question 3

Specimen answer

3 Here is a list of numbers

Put a ring around the number with the largest value.

$$\begin{array}{ccccccc} 0.3030 & \textcircled{\frac{1}{3}} & 0.0330 & \frac{3}{10} & 33\% & & [1] \\ & 0.3333 & & 0.3 & 0.33 & & \end{array}$$

Examiner comment

Comparing sizes of items in a mixture of forms may need some working shown for some candidates. This is easiest by showing all the items as decimals, as shown here. When this is done it is relatively straightforward to order them or, as in this case, identify the largest value.

Mark awarded = 1 out of 1

Question 4

Specimen answer

4 Chai says that 8 cm^2 is the same as 80 mm^2 .

Explain why Chai is wrong.

..... $1\text{ cm} = 10\text{ mm}$. $1\text{ cm}^2 = 10^2\text{ mm}^2$. $8\text{ cm}^2 = 8 \times 10^2 = 800\text{ mm}^2$ [1]

Examiner comment

The answer shows that $1\text{ cm} = 10\text{ mm}$, so $1\text{ cm}^2 = 10^2\text{ mm}^2$. Therefore, the area is $8 \times 10^2\text{ mm}^2 = 800\text{ mm}^2$, and Chai is wrong.

Mark awarded = 1 out of 1

Question 5

Specimen answer

5 $y = mx + c.$

Find the value of y when $m = -2$, $x = -7$ and $c = -3$.

$$-2 \times -7 + -3 = 14 - 3 = 11$$

$$y = \dots\dots\dots 11 \dots\dots\dots [2]$$

Examiner comment

First, substitute the values into the expression to get $-2 \times -7 + -3$ and then evaluate to 11.

Mark awarded = 2 out of 2

Question 6

Specimen answer

- 6 The number of cars parked in a car park at 9 am is recorded for 10 days.

124 130 129 116 132 120 127 107 118 114

Complete the stem-and-leaf diagram.

10	7	107
11	4 6 8	116 118 114
12	0 4 7 9	124 129 120 127
13	0 2	130 132

Key: 12|3 represents 123 cars

[2]

Examiner comment

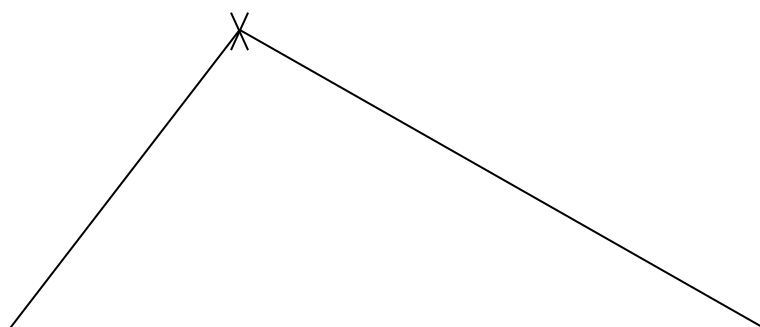
On the right, candidates should record the leaves in an unordered diagram, by writing them as they appear. In the answer table, they should order each line and write the answers in the spaces given. This is neater than trying to do both in the answer space and the examiner will always look in the answer table first. One mark is awarded for the unordered diagram and the second mark for ordering each line.

Mark awarded = 2 out of 2

Question 7

Specimen answer

- 7 Using a ruler and pair of compasses only, construct a triangle with sides 5 cm, 8 cm and 10 cm. Leave in your construction arcs.



[2]

Examiner comment

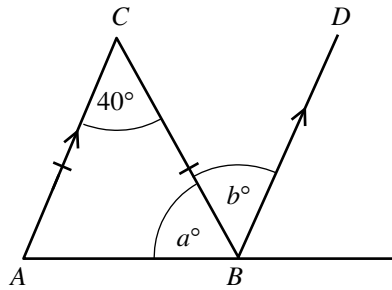
It is easier to draw the longest side first so the first line drawn here is a horizontal line exactly 10 cm long. Then set a pair of compasses to 5 cm, put the point on the bottom left hand corner, and drawn an arc near where the third point is likely to be. Then reset the compasses to 8 cm, place the point on the bottom right hand corner and cross the previous arc with another arc. Then join the three points together with straight lines to gain two marks. If the arcs are missing or one side was inaccurate, only one mark would be awarded.

Mark awarded = 2 out of 2

Question 8

Specimen answer

8



NOT TO SCALE

Triangle ABC is isosceles.
 AC is parallel to BD .

Find the value of a and the value of b .

$$180 - 40 = 140$$

$$140 \div 2 = 70$$

$$a = \dots\dots\dots 70 \dots\dots\dots$$

$$b = \dots\dots\dots 40 \dots\dots\dots [2]$$

Examiner comment

Angle a is in an isosceles triangle so the third angle in the triangle is therefore equal to a , so find a by calculating $2a = 180 - 40 = 140$, so $a = 140 \div 2 = 70$ (1 mark).

AC is parallel to BD so angle b is alternate to 40 , which is awarded the second mark.

Mark awarded = 2 out of 2

Question 9

Specimen answer

- 9 Rearrange the formula $5w - 3y + 7 = 0$ to make w the subject.

$$5w = 3y - 7$$

$$w = \frac{3y - 7}{5} \quad [2]$$

Examiner comment

The first step in all formula re-arrangement is to isolate the term including the subject letter. Here, $3y$ has been added and 7 subtracted to both sides of the formula to produce an expression for $5w$. Both sides have been divided by 5 to obtain the correct answer.

Mark awarded = 2 out of 2

Question 10

Specimen answer

10 Explain why $\sqrt{3}$ is irrational.

..... A rational number can be written as a fraction. $\sqrt{3}$ cannot be written as a fraction. [1]

Examiner comment

The answer has to state that a rational number is one which can be written as a fraction in its simplest terms, and $\sqrt{3}$ cannot be written in this way.

Many candidates struggle with questions regarding irrational numbers, and these are often the questions that are omitted. Here, the question asks to *explain* rather than just *identify* irrational numbers, so candidates need to know the properties of the different types of numbers.

Mark awarded = 1 out of 1

Question 11

Specimen answer

11 The mass, m kilograms, of a horse is 429 kg, correct to the nearest kilogram.

Complete this statement about the value of m .

$$429 + 0.5 = 429.5$$

$$429 - 0.5 = 428.5$$

$$\dots\dots\dots 428.5 \dots\dots\dots \leq m < \dots\dots\dots 429.5 \dots\dots\dots [2]$$

Examiner comment

Many candidates find lower and upper bounds difficult. When asked to correct to the nearest 'something', that 'something' should be halved and that value then subtracted and added to the original value. In this case, it is to the nearest kilogram and this has been halved (0.5 kg) and then that half a kilogram has been subtracted and added to the original value.

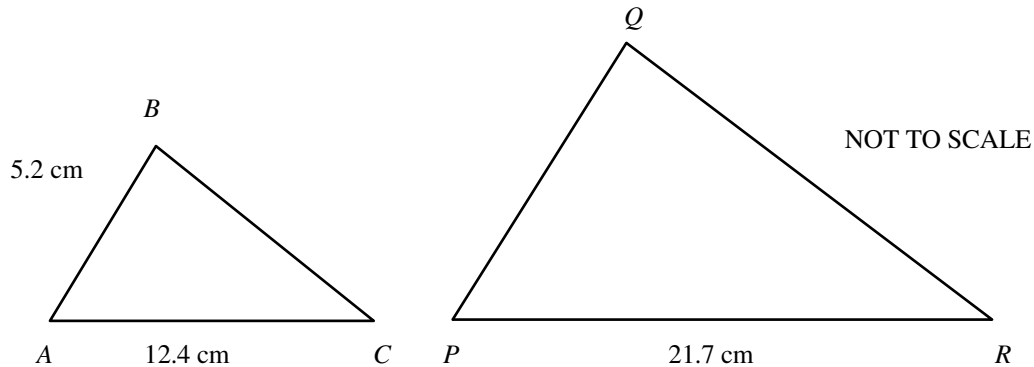
The boundaries are 429 ± 0.5 so 428.5 and 429.5 are the answers. The upper value of 429.5 is correct because the symbol used is $<$ so the boundary is not included. One mark is awarded for each of the boundaries.

Mark awarded = 2 out of 2

Question 12

Specimen answer

12 Triangle ABC is similar to triangle PQR .



Find PQ .

Scale factor from corresponding sides AC and PR is $21.7 \div 12.4 = 1.75$

$$PQ = 5.2 \times 1.75$$

$$PQ = \dots\dots\dots 9.1 \dots\dots\dots \text{ cm [2]}$$

Examiner comment

The scale factor from the measurements of the same sides of the triangles (AC and PR) has been identified, and the figure obtained (1.75) has been used to multiply the measurement of AB to correctly find the measurement of PQ .

In questions of this type, it may be helpful for candidates to think in terms of the diagram showing an enlargement. Therefore, finding a scale factor ($21.7 \div 12.4$ in this case) may avoid the common error in questions of this type of doing a subtraction ($21.7 - 12.4$) instead of a division. Also, candidates should take into consideration whether the length they are calculating is larger or smaller than the corresponding given length. While these diagrams are not to scale they are very close to being in the correct proportion so here the answer has to be more than 5.2 cm.

Mark awarded = 2 out of 2

Question 13

Specimen answer

13 Solve the inequality $n + 7 < 5n - 8$.

$$n + 7 + 8 < 5n$$

$$7 + 8 < 5n - n$$

$$15 < 4n$$

$$3.75 < n$$

$$\dots\dots\dots n > 3.75 \dots\dots\dots [2]$$

Examiner comment

The terms in n need to be collected on one side of the inequality and the terms in constants on the other side. Then, on both sides, subtract the n and add the 8 to give $7 + 8 < 5n - n$, and simplify it to $15 < 4n$. Finally, divide both sides by 4 to get $3.75 < n$. In the final answer given here, this is written with n at the start, $n > 3.75$, although either version is acceptable.

Mark awarded = 2 out of 2

Question 14

Specimen answer

14 Without using your calculator, work out $1\frac{7}{12} + \frac{13}{20}$.

You must show all your working and give your answer as a mixed number in its simplest form.

$$\begin{aligned}\frac{7}{12} + \frac{13}{20} &= \frac{35}{60} + \frac{39}{60} = \frac{74}{60} = 1\frac{14}{60} = 1\frac{7}{30} \\ 1 + 1\frac{7}{30} &= 2\frac{7}{30}\end{aligned}$$

$$\begin{array}{r} 2\frac{7}{30} \\ \dots\dots\dots \end{array} \quad [3]$$

Examiner comment

The method used here was to leave out the 1 and just add the fractions using the lowest common denominator which is 60.

Then calculate $\frac{7}{12} + \frac{13}{20} = \frac{35}{60} + \frac{39}{60}$ for the B1 mark for the common denominator and M1 for converting both fractions to it. The sum is $= \frac{74}{60}$, and this is converted to a mixed number and simplified $1\frac{14}{60} = 1\frac{7}{30}$. Then add the 1 which was discarded at the start to get the answer $2\frac{7}{30}$, for the third mark, A1.

Mark awarded = 3 out of 3

Question 15

Specimen answer

15 Here is a sequence of numbers.

7, 5, 3, 1, -1, ...

(a) Find the next term in this sequence.

$$7, \xrightarrow{-2} 5, \xrightarrow{-2} 3, \xrightarrow{-2} 1, \xrightarrow{-2} -1,$$

$$-1 - 2 = -3$$

.....-3..... [1]

(b) Find an expression for the n th term of this sequence.

$$-2n + 7 + 2 = -2n + 9$$

.....-2n + 9..... [2]

Examiner comment

(a) First, find the difference between each term to the next term, which is $5 - 7 = -2$. Then add this on to the last term to find the next term, so $-1 - 2 = -3$.

(b) The difference of -2 is the multiplier of n so the expression must start $-2n$. The constant term is the term before the first term so it is found by $7 + 2 = 9$, which gives the required expression of $-2n + 9$.

Mark awarded = 3 out of 3

Question 16

Specimen answer

16 A hexagon has five angles that each measure 115° .

Calculate the size of the sixth angle.

$$\text{Angle sum} = 180 \times (6 - 2) = 180 \times 4 = 720$$

$$720 - 5 \times 115 = 720 - 575 = 145$$

$$\dots\dots\dots 145^\circ \dots\dots\dots [3]$$

Examiner comment

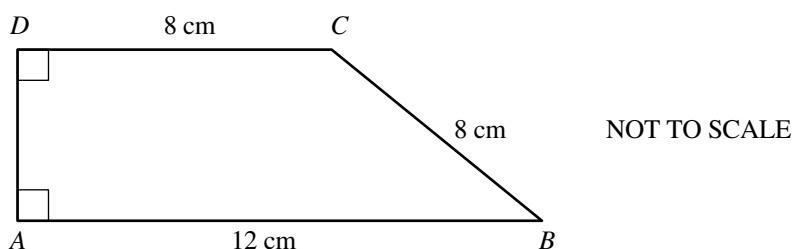
The angle sum is found first by using the formula $180 \times (n - 2)$, where n is the number of sides in the shape. Then substitute $n = 6$ (six sides in a hexagon) to get $180 \times (6 - 2)$ and calculate the total as 720. To find the sixth angle, subtract the five angles from this, $720 - 5 \times 115$, and calculate the correct answer of 145.

Mark awarded = 3 out of 3

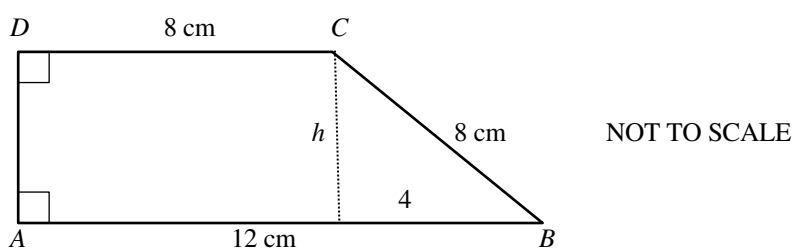
Question 17

Specimen answer

17 Calculate the area of this trapezium.



Annotated:



$$\begin{aligned} \text{Area} &= \frac{1}{2} \times (a + b) \times h & h^2 &= 8^2 - 4^2 \\ &= \frac{1}{2} \times (8 + 12) \times h & h &= \sqrt{48} = 6.9282 \\ &= 10 \times 6.9282 = 69.282 \end{aligned}$$

..... 69.3 cm² [4]

Examiner comment

To find the height of the trapezium, calculate the base of the right-angled triangle, which is $12 - 8 = 4$, and mark it on the diagram for reference. Then find h by using Pythagoras' theorem, giving $h^2 = 8^2 - 4^2$, and then calculate the square root of the result, $\sqrt{48}$.

Using this, substitute the correct values into the formula for the area of a trapezium: $= \frac{1}{2} \times (8 + 12) \times \sqrt{48}$. This gives the correct answer, 69.282.

The instructions on the cover of the question paper state to 'give non-exact numerical answers correct to 3 significant figures' so the answer is rounded to 69.3.

The formula for the area of a trapezium is a more efficient method than finding the area of the rectangle and the area of the right-angled triangle and then adding them together.

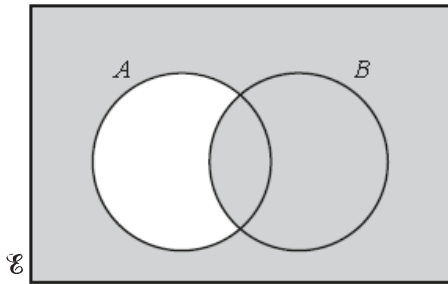
Mark awarded = 4 out of 4

Question 18

Specimen answer

18 Shade the region in each of the Venn diagrams below.

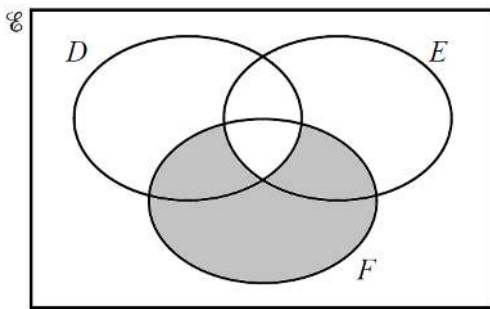
(a)



$$A' \cap B$$

[1]

(b)



$$(D \cap E)' \cap F$$

[1]

Examiner comment

(a) For $A' \cap B$, shade the whole region which is not in A and then shade all of region B .

(b) Here, $(D \cap E)' \cap F$ is all of F except for where D and E intersect with each other.

The region $D \cap E$ is the part common to both D and E , and region $(D \cap E)'$ is the part not in the intersection of D and E . The required region, $(D \cap E)' \cap F$, is all of the areas which are in F and not in the intersection of D and E .

Mark awarded = 2 out of 2

Question 19

Specimen answer

19 Use a calculator to find the decimal value of $\frac{\sqrt{29 - 3 \times 32^{0.4}}}{3}$

$$\frac{\sqrt{29 - 3 \times 4}}{3}$$

.....1.37..... [1]

Examiner comment

On the calculator, press the keys: $\sqrt{(29 - 3 \times 32^{0.4})} \div 3$. This gives the correct answer, 1.37436..., and is rounded to three significant figures to give 1.37.

Mark awarded = 1 out of 1

Question 20

Specimen answer

- 20 Write the recurring decimal $0.3\dot{2}$ as a fraction.
You must show all your working

$$10n = 3.22222\dots$$

$$100n = 32.2222\dots$$

$$100n - 10n = 32.2222\dots - 3.2222\dots$$

$$90n = 29$$

$$n = \frac{29}{90}$$

$$\frac{29}{90} \quad [2]$$

Examiner comment

There is only one recurring digit so the two powers of 10 must be consecutive, and the easiest to use is 100 and 10, as shown here, although others can be used, for example 10 and 1.

So, $n = 0.32222\dots$ then $100n = 32.2222\dots$, and $10n = 3.2222\dots$.

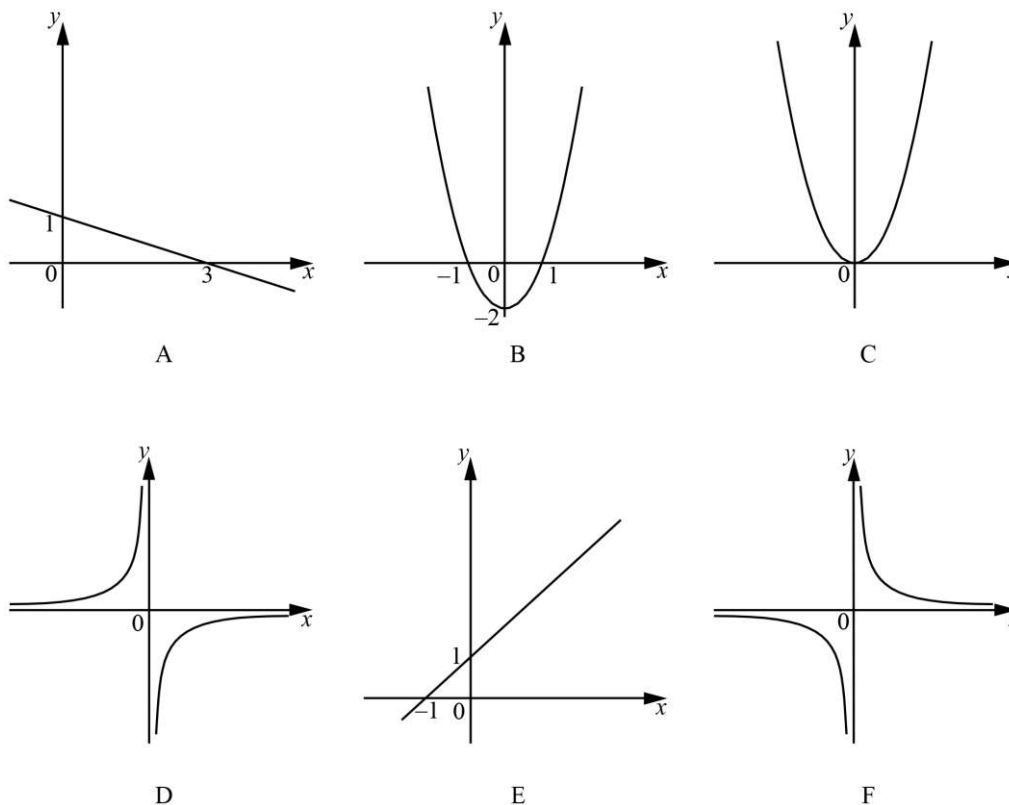
By subtracting, all the recurring 2s disappear, resulting in $90n = 29$, and the fraction $\frac{29}{90}$.

Mark awarded = 2 out of 2

Question 21

Specimen answer

21 The diagrams A, B, C, D, E and F are six graphs of different functions.



Complete the table to identify the correct graph for each function.
One has been done for you.

Function	$y = x + 1$	$y = 1 - \frac{x}{3}$	$y = 2x^2$	$y = -\frac{4}{x}$
Diagram	E	A	C	D

[3]

Examiner comment

First, the shape of each graph needs to be identified.

For $y = 1 - \frac{x}{3}$, this is a straight line with a gradient of $-\frac{1}{3}$ and going through the point $(0, 1)$. The only graph with these characteristics is A.

For $y = 2x^2$, this is a U shape quadratic which has its lowest point at $(0, 0)$ and graph C is the only one that has these characteristics.

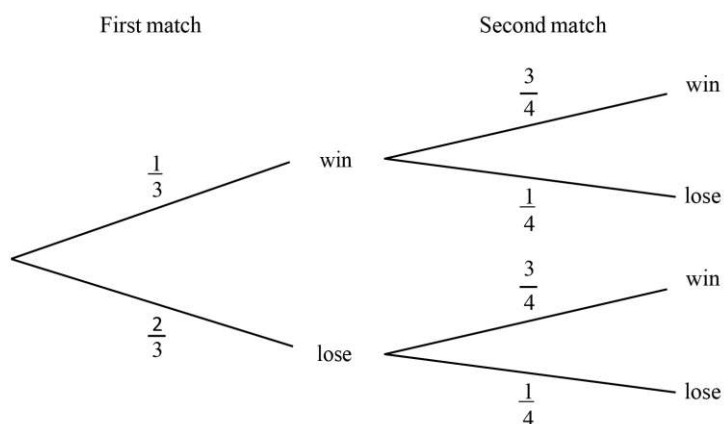
For $y = -\frac{4}{x}$, this does not have a point at $x = 0$. It has two arcs; when x has negative values y has positive values and when x has positive values y has negative values. Graph D is the only one that has these characteristics.

Mark awarded = 3 out of 3

Question 22

Specimen answer

- 22 A soccer team plays two matches.
The tree diagram shows the probability of the team winning or losing the matches.



Find the probability that the soccer team wins at least one of the two matches.

$$\frac{1}{3} \times \frac{3}{4} = \frac{1}{4}$$

$$\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$$

$$\frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$$

$$\frac{1}{4} + \frac{1}{12} + \frac{1}{2} = \frac{10}{12} = \frac{5}{6}$$

$$\frac{5}{6}$$

..... [3]

Examiner comment

The most efficient method is to use the probability of 'at least win' equals 1, minus the probability of no wins, so $P(\text{no wins}) = \frac{2}{3} \times \frac{1}{4} = \frac{1}{6}$. So $P(\text{at least one win}) = 1 - \frac{1}{6} = \frac{5}{6}$.

The alternative method is to work out each of the three alternatives and then add them: $\frac{1}{3} \times \frac{3}{4} + \frac{1}{3} \times \frac{1}{4} + \frac{2}{3} \times \frac{3}{4}$, as shown here.

Mark awarded = 3 out of 3

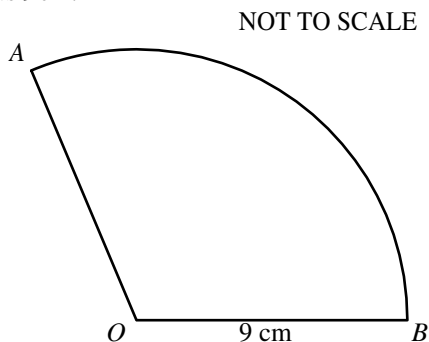
Question 23

Specimen answer

- 23 AB is an arc of a circle, centre O , radius 9 cm.

The length of the arc AB is 6π cm.
The area of sector AOB is $k\pi$ cm².

Find the value of k .



$$C = 2 \times \pi \times 9 = 18\pi \text{ so sector is } 6\pi \div 18\pi = \frac{1}{3} \text{ of circle}$$

$$\text{Area of sector} = \pi \times 9^2 \times \frac{1}{3} = 27\pi$$

$$k = \dots\dots\dots 27 \dots\dots\dots [3]$$

Examiner comment

First, using $2\pi r$, calculate the entire circumference of the circle, $2 \times \pi \times 9 = 18\pi$.

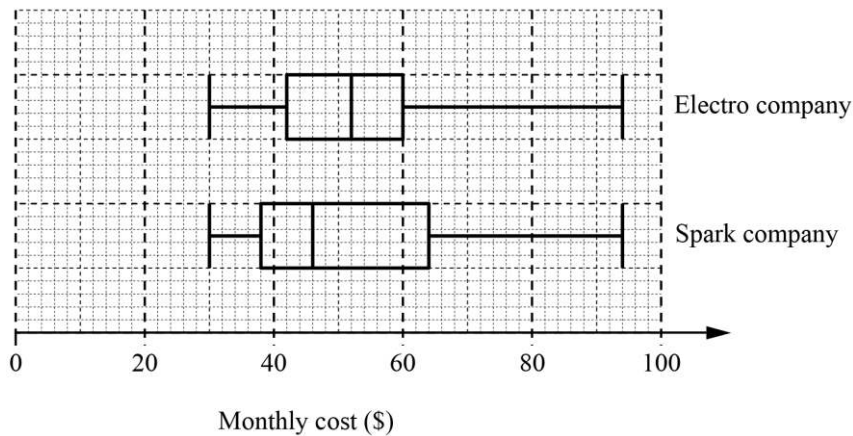
Then, with the given arc length of 6π , calculate how much of the circle circumference the arc AB is, which is $6\pi \div 18\pi$ or $\frac{1}{3}$ of the whole circle. Then calculate the area of the sector, $\frac{1}{3} \times \pi \times 9^2 = 27\pi$, and the value of k , which is 27.

Mark awarded = 3 out of 3

Question 24

Specimen answer

- 24 These box-and-whisker plots show the monthly electricity costs for 100 different households who use Electro company or Spark company.



Tom says that the monthly costs with Electro company are lower and vary less than with Spark company.

Is Tom correct?

Justify your answer with reference to the box-and-whisker plots.

	Median	IQR
Electro	52	(60–42) 18
Spark	46	(64–38) 26

Electro has a higher median than Spark, so the monthly costs are higher ($52 > 46$), so Tom is incorrect – the monthly costs with Electro are higher than with Spark.

Electro has a lower Inter-Quartile Range than Spark, so Electro are less varied ($18 < 26$), so Tom is correct – the monthly costs with Electro vary less than with Spark.

[4]

Examiner comment

Read the medians first, which are 52 for Electro and 46 for Spark, which show that the average monthly costs for Electro are higher than Spark and, therefore, Tom is incorrect.

Then calculate the interquartile ranges, which are 18 for Electro and 26 for Spark, which show that the monthly costs for Electro are less varied and, therefore, those for Spark are more varied, and Tom is correct.

Mark awarded = 4 out of 4

Question 25

Specimen answer

25 Find the turning point of $y = x^2 + 4x - 3$ by completing the square.

$$x^2 + 4x - 3 = (x + 2)^2 - 4 - 3 = (x + 2)^2 - 7$$

$$\text{so turning point} = (-2, -7)$$

(..... -2 , -7) [4]

Examiner comment

The factor inside the bracket is completed by halving the 4, resulting in:

$$x^2 + 4x - 3 = (x + 2)^2 - 4 - 3 = (x + 2)^2 - 7.$$

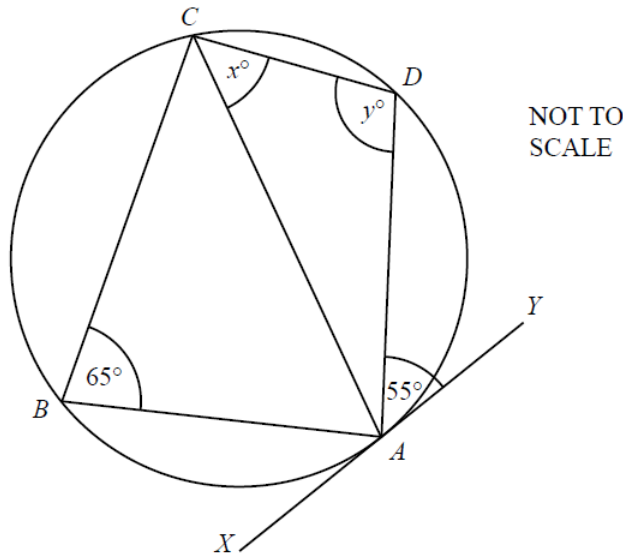
Complete the bracketed term, $(x + 2)^2$, for the first M1 mark, then the work to find the constant term, $(x + 2)^2 - 4 - 3$, earns the second M1 mark. Then complete the full square term and simplify for the third M1 mark. Finally, obtain the answer from this expression, $(-2, -7)$, which earns the B1 mark.

Mark awarded = 4 out of 4

Question 26

Specimen answer

26



A , B , C and D are points on the circumference of the circle.
The line XY is a tangent to the circle at A .

- (a) Find the value of x , giving a reason for your answer.

$x =$ 55 because alternate segment theorem

[2]

- (b) Find the value of y , giving a reason for your answer.

$y =$ 115 because opposite angles in a cyclic quadrilateral

..... add up to 180° [2]

Examiner comment

(a) This uses the alternate segment theorem, and therefore the angle x is equal to the angle marked 55.

(b) $ABCD$ is a cyclic quadrilateral, a property of which is that opposite angles in a cyclic quadrilateral add up to 180° . Therefore, $y = 180 - 65$ (angle B) = 115.

Mark awarded = 4 out of 4

Question 27

Specimen answer

27 (a) Simplify $(27x^6)^{\frac{1}{3}}$.

$$27^{\frac{1}{3}} \times x^{6 \times \frac{1}{3}} = 3x^2$$

..... $3x^2$ [2]

(b) Find the value of $(64x^4)^{0.5} \times 4x^{-2}$.

$$\begin{aligned} & 64^{0.5} x^{4 \times 0.5} \times 4x^{-2} \\ & = 8x^2 \times 4x^{-2} \\ & = 32x^{2-2} \\ & = 32 \end{aligned}$$

..... 32 [3]

Examiner comment

(a) This expression is simplified using one law of indices, $(x^a)^b = x^{ab}$, to get: $(27x^6)^{\frac{1}{3}} = 27^{\frac{1}{3}} \times x^{6 \times \frac{1}{3}} = 3x^2$. There are 2 marks for the correct answer and 1 mark for either $3x^n$ or mx^2 .

(b) This expression is simplified using two laws of indices, $x^a \times x^b = x^{a+b}$ and $(x^a)^b = x^{ab}$, to get: $(64x^4)^{0.5} \times 4x^{-2} = 64^{0.5} \times x^{4 \times 0.5} \times 4x^{-2} = 8 \times x^2 \times 4x^{-2} = 32x^{2-2} = 32x^0 = 32$.

The correct answer, 32, scores 3 marks; otherwise $8x^2$ earns B1 and the use of the addition law of indices with $4x^2$ or $\frac{4}{x^2}$ earns M1.

Mark awarded = 5 out of 5

Question 28

Specimen answer

28 Solve the simultaneous equations.

You must show all your working.

$$\begin{aligned}y &= 5x^2 + 4x - 19 \\y &= 4x + 1\end{aligned}$$

$$5x^2 + 4x - 19 = 4x + 1$$

$$5x^2 - 19 = 1$$

$$5x^2 - 20 = 0$$

$$5x^2 = 20$$

$$x^2 = 4$$

$$x = 2 \text{ or } -2$$

$$x = 2 \quad \text{therefore, } y = 4 \times 2 + 1 = 9$$

$$x = -2 \quad \text{therefore } y = 4 \times -2 + 1 = -7$$

$$\begin{array}{ll}x = \frac{2}{\dots\dots\dots} & y = \frac{9}{\dots\dots\dots} \\x = \frac{-2}{\dots\dots\dots} & y = \frac{-7}{\dots\dots\dots} \quad [5]\end{array}$$

Examiner comment

Both these equations start with 'y =' so they can be equated to each other: $5x^2 + 4x - 19 = 4x + 1$.

Then simplify by collecting like terms together, $5x^2 - 20 = 0$, then rearrange to give $5x^2 = 20$, then divide each side by 5 to give $x^2 = 4$.

There are two square roots of 4 so this gives +2 and -2.

Then find the values of y by using $y = 4x + 1$ with these two values of x, which shows that when $x = 2$, $y = 9$, and when $x = -2$, $y = -7$.

Mark awarded = 5 out of 5

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