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GCSE (9–1)

Examiners' report

MATHEMATICS

J560

For first teaching in 2015

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Version 1

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Contents

Introduction

Our examiners' reports are produced to offer constructive feedback on candidates' performance in the examinations. They provide useful guidance for future candidates.

The reports will include a general commentary on candidates' performance, identify technical aspects examined in the questions and highlight good performance and where performance could be improved. A selection of candidate responses is also provided. The reports will also explain aspects which caused difficulty and why the difficulties arose, whether through a lack of knowledge, poor examination technique, or any other identifiable and explainable reason.

Where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

A full copy of the question paper and the mark scheme can be downloaded from our secure Teach Cambridge site.

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Paper 3 series overview

Candidates that were reasonably prepared gained many of the marks in the early part of the paper, as well as still picking up some marks by attempting the questions in the rest of the paper. These candidates generally showed working to support their responses and used a calculator reasonably efficiently.

Questions of a practical nature, simple percentages and the scatter diagram question allowed candidates to demonstrate their strengths.

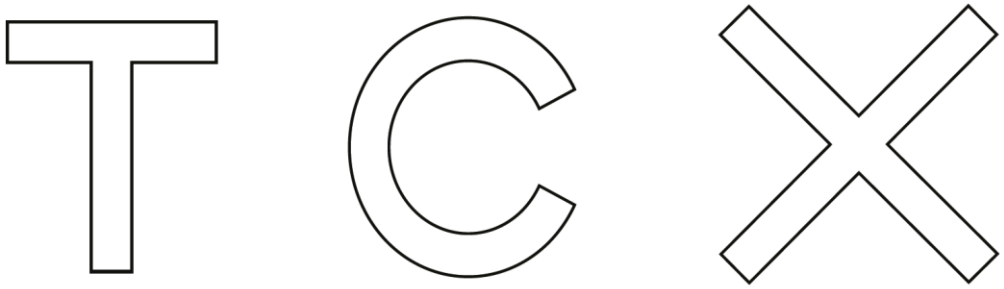
The algebraic and geometric questions however frequently revealed weaknesses in candidates' knowledge.

Candidates who used a calculator efficiently and did not rely on non-calculator methods generally did well in the paper.

Candidates who did well on this paper generally:	Candidates who did less well on this paper generally:
• attempted most questions • used a calculator effectively, so that their methods were efficient • wrote figures and symbols clearly and unambiguously • were prepared for and confident in a wide range of topics, particularly key ones such as ratio, probability and algebra • showed clear and step by step working, which even with an incorrect final answer, made part marks easier to gain • sometimes used the inverse to check their answers • took time to read the questions • interpreted questions correctly and followed instructions • offered clear explanations that made sense • provided thorough working towards the given answer in 'Show…' questions • used a calculator efficiently • knew relationships between metric units and could use these correctly • demonstrated confidence with algebraic processes.	• did not attempt most questions • seemed to lack a thorough understanding of some key topics, particularly ratio, probability and algebra • misinterpreted questions and information, or did not follow instructions • had difficulty explaining • made multiple attempts at questions without indicating which one they wanted to be marked (for example, by deleting the unused method or values) • offered working that was scattered all over the answer space with no discernible order, resembling jottings and values rather than calculations • omitted working entirely on some questions • rounded prematurely, leading to inaccurate answers • incorrectly converted between metric units • were unfamiliar with simple and compound interest • did not appear to have the use of a calculator.

Question 1 (a)

1 (a) For each letter below, draw all the lines of symmetry.



[3]

Many candidates scored one or two marks on this question.

T and C were often correct, although some very short lines were given (these were condoned). Many candidates missed that the X has four lines of symmetry.

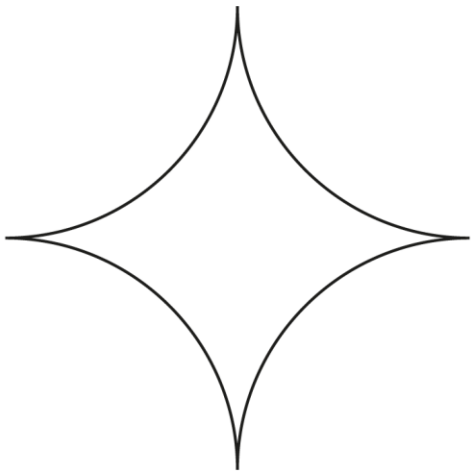
Freehand lines were condoned in this question, which was fortunate for many candidates.

Common errors were to draw a horizontal line on the T and a vertical line on the C.

Question 1 (b)

(b) This shape is drawn using four quarter circles.

Write down the order of rotation symmetry for the shape.



(b) ..... **[1]**

Around half the candidates gave the right response.

Common errors were 2 or 90°.

Question 2 (a)

2 **(a)** In the number 34 752, the digit 4 represents four thousand.

Write in words what the digit 7 represents.

(a) ..... **[1]**

This question was well answered.

Some candidates used the digit 7 in their response, or wrote 'hundreds', to score zero marks.

Question 2 (b)

(b) Write eight million in figures.

(b) ..... **[1]**

This part was also well answered.

A common error was to use too many or too few zeros.

Question 3 (a)

3 **(a)** What type of numbers are 2, 3 and 5?

Circle **one** answer from the list.

cube numbers even numbers odd numbers prime numbers square numbers

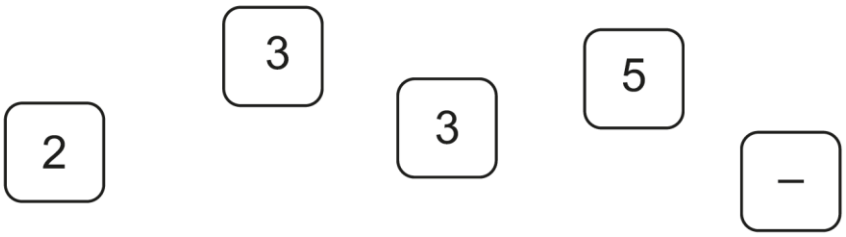
[1]

The vast majority selected the correct term.

A common error was 'odd numbers', but all terms were chosen.

Question 3 (b) (i)

(b) These are five tiles.



(i) Arrange the five tiles to make a calculation with the answer 3.

(b)(i) ..... **[1]**

Many candidates answered correctly. Some rewrote or changed their response on the dotted line. Some candidates wrote calculations using more than the single operator given.

Question 3 (b) (ii)

(ii) Write down a multiple of 8 that can be made using two of the five tiles.

(ii) ..... **[1]**

This was also well answered.

Some candidates wrote multiples of 8 that did not contain the given digits. Some misinterpreted the demand, for example writing 35 – 3.

Question 4 (a) (i)

4 A fair spinner has five sides, numbered 1, 2, 3, 4 and 5.

(a) (i) Write down the probability of the spinner landing on 2.

(a)(i) ..... **[1]**

Many correct responses were seen. Candidates sometimes gave 0.2 or 20%.

A common error was $\frac{2}{5}$, possibly from incorrectly using the given outcome 2.

Question 4 (a) (ii)

(ii) Write down the probability of the spinner **not** landing on 2.

(ii) ..... **[1]**

Many correct responses were seen here too. Examiners followed through from an error in part (a)(i).

Question 4 (b)

(b) Write down an outcome for the spinner that has a probability of 0.

.....

..... **[1]**

Many candidates misinterpreted the question and explained a probability of 0 (e.g. responding 'It could not happen') rather than giving an outcome.

Explanations were frequently poorly expressed.

Question 5

5 Use one of these symbols $<$, $>$ or $=$ to make each statement true.

0 ..... -2

3.5 ..... $\frac{7}{2}$

[2]

Many candidates scored marks here and often both parts were correct.

Question 6

6 A family buys a television for £599.
They pay a deposit of £119.
They then pay the rest of the cost in 12 equal payments.

How much is each payment?

£ ..... **[2]**

This practical question was well received by many. A large number of correct responses with clear working were seen.

A number of candidates misread 119 as 199. Some wrote 599 – 119, but actually calculated 599 – 199.

An error sometimes seen was (599 + 119) ÷ 12.

Question 7 (a)

7 **(a)** Write this ratio in its simplest form.

4 centimetres : 8 millimetres

(a) ..... : ..... **[2]**

Many candidates had problems with this question and few were given marks.

The common wrong answer was 1 : 2, from ignoring the units.

Another common mistake was 4 : 80, from incorrectly changing mm to cm by multiplying by 10 (many similar variations of incorrect unit changing were also seen, such as 40 : 80).

Responding with 1 cm : 2 mm was often seen and this scored a special case mark.

Question 7 (b)

(b) The ratio 4 : 5 can be written in the form 1 : n.

Find the value of n.

(b) n = ... **[1]**

This question was answered slightly better than (a) but was still a challenge for many candidates.

Common wrong answers were 2 and 0.8.

Question 8 (a) (i)

8 **(a)** Simplify.

(i) $4a + 2a + a$

(a)(i) ..... **[1]**

Most candidates gave the correct response. However, misunderstandings with algebra were revealed by answers such as $6a^3$, $7a^3$, or $6a + a$.

Question 8 (a) (ii)

(ii) $2x - 3y - 3x + 4$

(ii) ..... **[2]**

This question saw many candidates score at least one mark, often for either $-x$ or $-3y + 4$ in their answer.

Again, some poor algebra was seen in working, such as $^-x - 3y + 4 = ^-4xy + 4 = 0xy$, or $^-3y + 4 = 1$, or $2x - 3x = 5x$.

Question 8 (b)

(b) Solve.

$p - 5 = ^-4$

(b) $p =$ ..... **[1]**

This was well done and was often accompanied by working.

The common errors were $^-9$ and 9, although other numbers did occur.

Question 9

9 Insert one pair of brackets into each calculation to make it correct.

$$15 \div 7 - 2 = 3$$

$$5 \times 2 + 3 \times 2 = 26$$

[2]

The first calculation was correct more often than the second.

Many candidates seemed to think that brackets could only encompass two values.

Question 10 (a)

10 (a) Factorise.

$5x - 20$

(a) ..... **[1]**

This question was not understood by the majority of candidates.

More confident candidates went straight to the correct answer. Others tried to collect terms and $-15x$ was sometimes seen, or they didn't deal with the constant term and just gave $5(x - 20)$.

Question 10 (b)

(b) Factorise fully.

$14x + 7x^2$

(b) ..... **[2]**

As with part (a), this was not understood by the majority and a small minority did not attempt it.

Where candidates seemed confident with algebra, partial factorisation was the usual error.

Less confident candidates had more trouble. Some responded with $21x^3$ or $21x^2$ (some reached this and then squared the coefficient, giving $441x$), while others squared the 7 and wrote $14x + 49x = 63x$.

Some candidates extracted a factor containing x, but then left x in both terms inside the bracket, e.g. $7x(2x + x)$.

Question 11 (a)

11 Gabi records the number of times a biased six-sided dice lands on each of its numbers.

(a) Complete the table to show the relative frequencies.

Number on the dice	1	2	3	4	5	6
Frequency	10	21	7	4	3	5
Relative frequency					0.06	0.10

[2]

Some candidates did not attempt this. Of those who did, some earned one mark for working out the total frequency (50).

Many incorrect relative frequencies were seen. It appeared that the term was not well understood and the given examples were not used to aid any misunderstanding.

Question 11 (b)

(b) Use Gabi's results to estimate the probability that the spinner lands on 5 or 6.

(b) ..... **[2]**

Candidates did a little better here in (b) than in (a). Of those attempting the question, many knew to add 0.06 and 0.10, however some did not add them successfully (often appearing to be adding them without using a calculator).

There was no discernible pattern to the errors. Many clearly felt they should give the answer as a fraction and some correctly converted 0.16 to $\frac{16}{100}$. Responses such as $\frac{2}{6}$ and even $\frac{3}{6}$ were also seen.

Question 12 (a)

12 (a) Decrease 480 by 20%.

(a) ..... **[3]**

Many correct responses were seen, possibly because the reduction was a multiple of 10%.

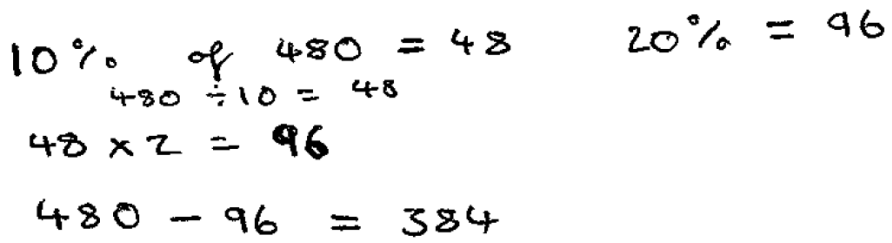
Very few candidates are using multipliers (e.g. 0.8 × 480) for percentage questions and instead continue to write 10% = ..., 20% = ..., which does not constitute a method as no operations are seen.

Key point call out

Candidates should be encouraged to use multipliers and show operations in their percentage working.

Labels do not constitute method.

Exemplar 1



(a) 384 **[3]**

This exemplar shows a typical non-calculator method. The working could have been replaced with 480 × 0.8 = 384.

This candidate shows operators to define their method, but many only include 10% = …, 20% = … and these will not gain method marks if an error is made.

Question 12 (b)

(b) Alex buys a new phone with 10.5 Gb (Gigabytes) of data.
This is 40% more data than on Alex's old phone.

Work out the amount of data Alex had on the old phone.

(b) ..... Gb **[3]**

Very few candidates answered this question correctly.

The error made by almost all was to find 10% of 10.5, then 40% and subtract this. Only a very small minority realised that the 10.5 was 140% of the data on Alex's old phone.

Only those familiar with multipliers found the resulting working straightforward.

Question 13

13 A student has a pencil case containing 60 pencils.

$\frac{1}{4}$ of the pencils are red.

$\frac{2}{5}$ of the red pencils need sharpening.

Work out how many of the red pencils need sharpening.

..... **[3]**

A number of good responses were seen and nearly all candidates attempted the question.

Many scored a mark for finding $\frac{1}{4}$ of 60 (again, many wrote '$\frac{1}{4}$ of 60' rather than $\frac{1}{4} \times 60$ that would constitute method).

The common error was to think that the two fractions were independent, so the second line of working was sometimes '$\frac{2}{5}$ of 60 = …'.

A number of candidates changed the fractions to decimals and/or percentages, which made the working much harder for themselves.

Question 14 (a)

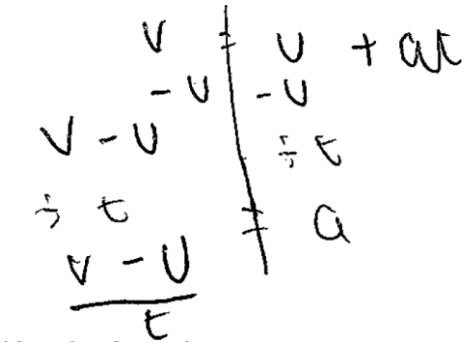
14 (a) Show that the formula $v = u + at$ can be rearranged to $a = \frac{v-u}{t}$. **[1]**

Very few candidates were able to show that the rearrangement was correct. More than a third of candidates did not attempt the question.

Algebraic errors were common. There were a number of misunderstandings, but in particular:

- subtracting *t* from one or more terms
- using arrows to indicate movement, with no processes being shown
- writing added or subtracted terms under the formula with no clear steps seen.

Exemplar 2



This type of layout is not often successful for this type of 'Show…' question. No clear step is seen in the rearrangement, e.g. $v - u = at$, which would have scored the mark.

Question 14 (b)

(b) Use the formula

$$a = \frac{v - u}{t}$$

to find the acceleration, a m/s^2, when a particle takes 4 seconds to increase from an initial velocity of 3 m/s to a final velocity of 9 m/s.

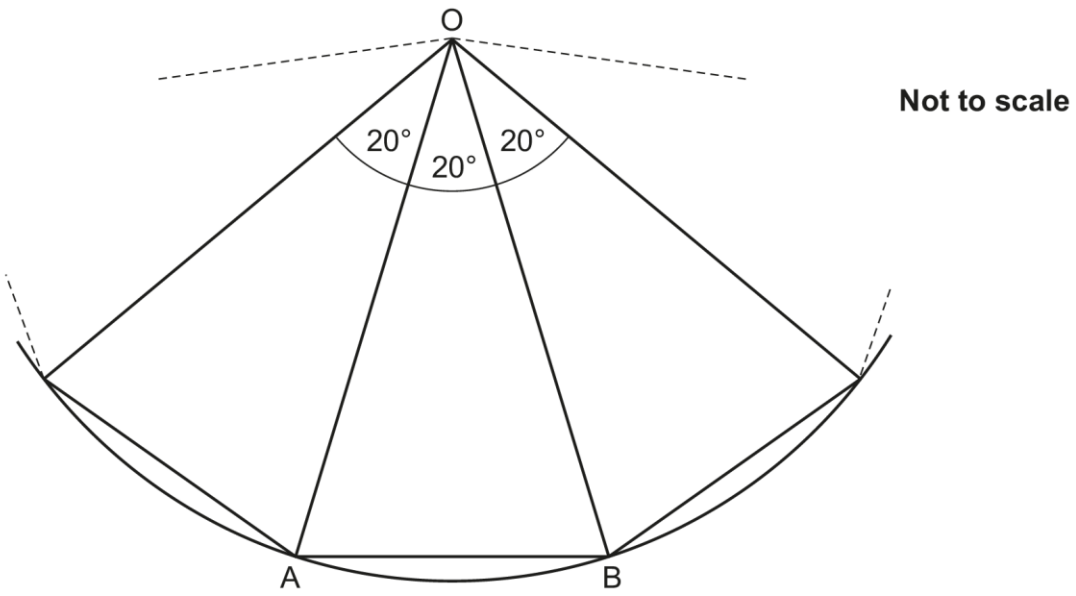
(b) $a =$ ..... m/s^2 **[2]**

More candidates were successful with using the given formula here in (b) than in (a). Around three-quarters attempted the question.

For those who did not score marks, the common error was substituting the values for v, u and t incorrectly. Many of these gave $\frac{3 - 9}{4}$, but the 4 was also sometimes misplaced.

Question 15 (a) (i)

15 A regular polygon is being constructed inside a circle, centre O.
Part of the construction is shown in this diagram.



Not to scale

(a) (i) Give a reason why OA = OB.

..... **[1]**

Almost no candidates scored this mark. Most focused on the triangles and cited isosceles triangles as the reason, or that the triangles were the same. Few stated that the lines were radii of the circle.

Question 15 (a) (ii)

(ii) Write down the mathematical name of triangle OAB.

(a)(ii) ..... **[1]**

Most candidates responded with isosceles, although frequently spelt incorrectly.

Equilateral was a common incorrect response.

Question 15 (b)

(b) The regular polygon is completed.

Work out the sum of the interior angles of the regular polygon.

(b) .....° **[3]**

Very few candidates reached a correct answer. A few candidates gained a mark for finding and using the other angles of a triangle.

Very few spotted that 360 ÷ 20 would give the number of triangles.

Most attempts involved repeatedly adding 20° and some assumed the polygon was a pentagon, presumably taking only the given solid lines to define it.

Question 16 (a)

16 Dev and Emma share some money in the ratio 2 : 3.

(a) Dev says

I get $\frac{2}{3}$ of the money.

What mistake has Dev made?
Give the fraction of the money Dev actually receives.

.....

.....

The fraction of the money Dev receives is ..... **[2]**

Most candidates attempted this question and many successfully gained at least one mark. Most realised that Dev should have added the 2 and 3 to form the denominator, but some struggled to express this coherently. Many gave the correct fraction.

Assessment for learning

Candidates should practice giving coherent reasons, utilising evidence from the text. These reasons should then be presented to candidates' peers for constructive review.

Question 16 (b)

(b) Dev receives £100.

Work out how much money Dev and Emma shared between them.

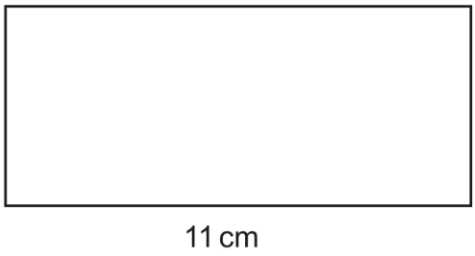
£ ..... **[3]**

Most candidates who attempted this scored one or more marks.

The common error was to divide 100 by 5 and not 2.

Question 17

17 (a) Work out the perimeter of this rectangle.



Not to scale

(a) ..... cm **[2]**

Many correct calculations were seen. The common error was 11 × 3. A few calculated 11 × 3 × 11 × 3.

Question 17 (b)

(b) Finley draws a rectangle and says

The perimeter is 20 cm and the length is 10 cm.

Can Finley be correct?
Show how you decide.

..... because .....

..... **[2]**

Fewer candidates were successful here, however some good responses were seen with 10 + 10 = 20 followed by recognition that there was nothing left for the height/width.

Some stated that he was correct as 2 × 10 = 20, indicating confusion of perimeter with area (as commonly seen in the first part). Some responded that there was a missing length but offered no calculation to support their assertion.

Some candidates made the rectangle into a square with side length 5 cm, misinterpreting the question.

Question 18

18 Nina invests £540 at a simple interest rate of 2% per year.
Kareem invests £540 at a compound interest rate of 2% per year.

Work out the difference in value between the two investments at the end of 5 years.
You must show your working.

£ ..... **[6]**

This unstructured question allowed many candidates to score one or two marks and with a significant number receiving all six.

Methods seen were often inefficient, although some stronger candidates used the compound interest formula (provided on the formulae sheet that was given to candidates this series) correctly and showed efficient, well organised working.

Candidates could often find the value of either the simple or compound interest investment correctly, to receive part marks. Very few used multipliers when working with the percentages, but the simplicity of the percentage figures meant that candidates were usually successful.

Those that made errors with the simple interest often successfully found 2% of 540 and added it to 540, but then either stopped or multiplied their (540 + 2%) by 5.

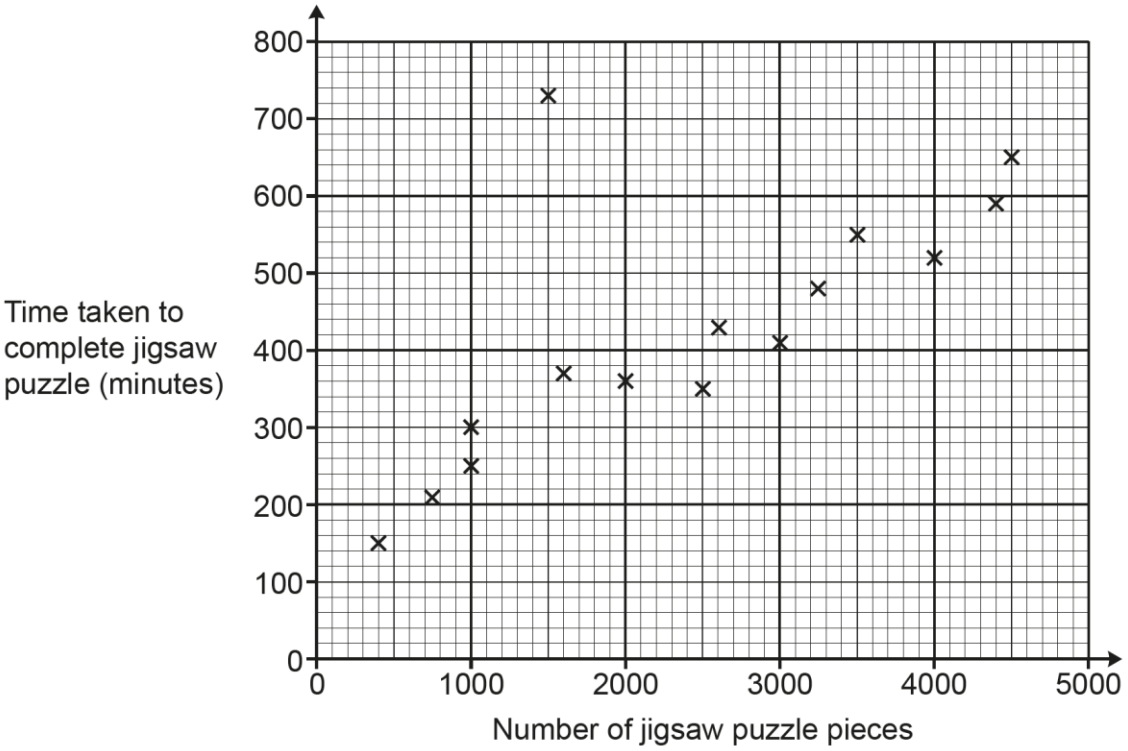
A few candidates wasted a great deal of time attempting to calculate compound interest using non-calculator methods. These also usually involved premature rounding, leading to the final answer being out of tolerance.

Question 19 (a) (i)

19 Beth completes some jigsaw puzzles and records the following information.

- The number of pieces in the jigsaw puzzle.
- The time taken to complete the jigsaw puzzle, in minutes.

Beth shows this information in a scatter diagram.



(a) (i) Beth completes two more jigsaw puzzles.

- A 3000 piece jigsaw puzzle taking 460 minutes.
- A 1300 piece jigsaw puzzle taking 320 minutes.

Show this information on the scatter diagram. **[1]**

Most candidates plotted the points correctly, although some misread the scales. Some candidates did not respond at all.

Question 19 (a) (ii)

(ii) Describe the type of correlation shown on the scatter diagram.

(a)(ii) ..... **[1]**

The correct response of 'positive' was often seen, although 'linear', 'straight line', 'rising' and 'ascending' were also used.

A very small number of candidates also commented on the strength of the correlation, which was not required and was neither penalised nor rewarded.

Question 19 (b) (i)

(b) One of Beth's jigsaw puzzles was described as "the most difficult jigsaw puzzle you will ever try".

(i) Circle the most likely jigsaw puzzle on the scatter diagram. **[1]**

The vast majority of candidates circled the correct point, but a few chose either (4500, 650) or (400, 150).

Question 19 (b) (ii)

(ii) Give a reason why you chose this jigsaw puzzle.

.....

.....

..... **[1]**

Only a small number of candidates were given this mark.

Many made the point that it took a long time to do but did not make any comparison with other jigsaws with a similar number of pieces.

Some said that it was an outlier and some said that it did not follow the trend or was not near the trend line, which were all true, but did not justify the selection.

Question 19 (c) (i)

(c) (i) Draw a line of best fit on the scatter diagram. **[1]**

This was often done well.

Some candidates felt compelled to draw the line through (0, 0), putting it out of tolerance.

Some drew a freehand line. Some drew a dot-to-dot line.

Question 19 (c) (ii)

(ii) Use your line of best fit to estimate how many pieces are in a jigsaw puzzle that takes Beth 500 minutes to complete.

(c)(ii) ..... pieces **[1]**

Most candidates used their line correctly. A few candidates misread the scale and gave responses like 3030 when their line suggested a response of 3300.

Question 19 (d)

(d) Explain why Beth should **not** use her scatter diagram to estimate how long it will take to complete a jigsaw puzzle containing 8000 pieces.

.....

.....

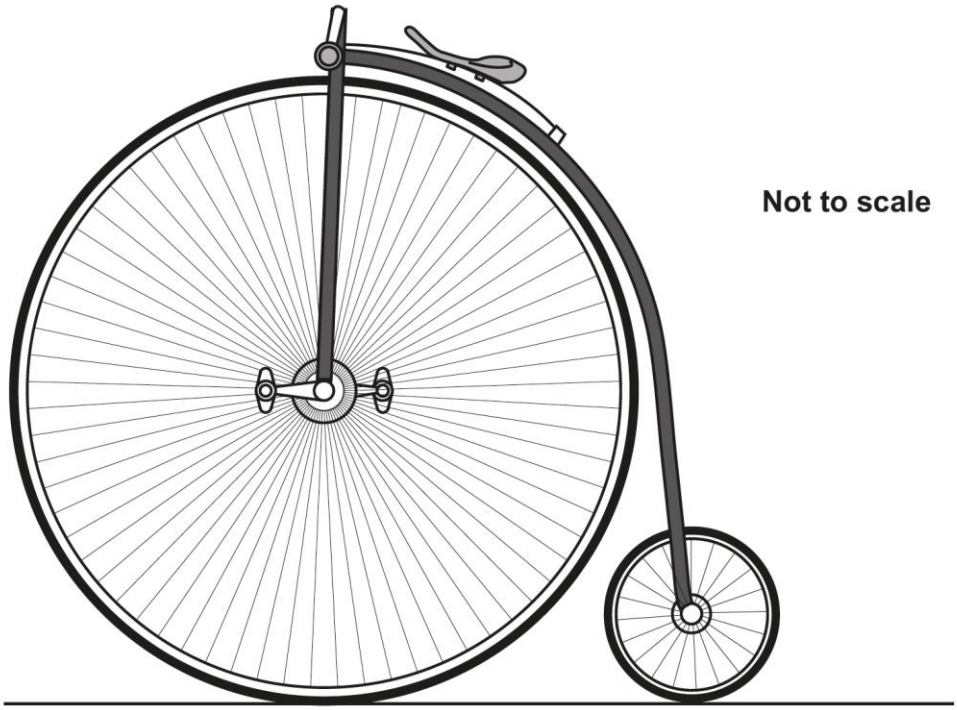
..... **[1]**

This was often not done well. Most comments were to the effect that the horizontal axis was not long enough and so it would not be accurate, or she hadn't plotted that point.

Few correctly noted that the point was outside the data and so any correlation seen in the given data might not apply for jigsaws with 8000 pieces.

Question 20

20 The diagram shows a Penny Farthing bicycle.



Not to scale

The diameter of the large wheel is 130 cm.
The diameter of the small wheel is 46 cm.

On a short journey, the large wheel makes exactly 69 rotations.
The small wheel also makes an exact number of rotations.

Work out the number of rotations made by the small wheel.

..... **[4]**

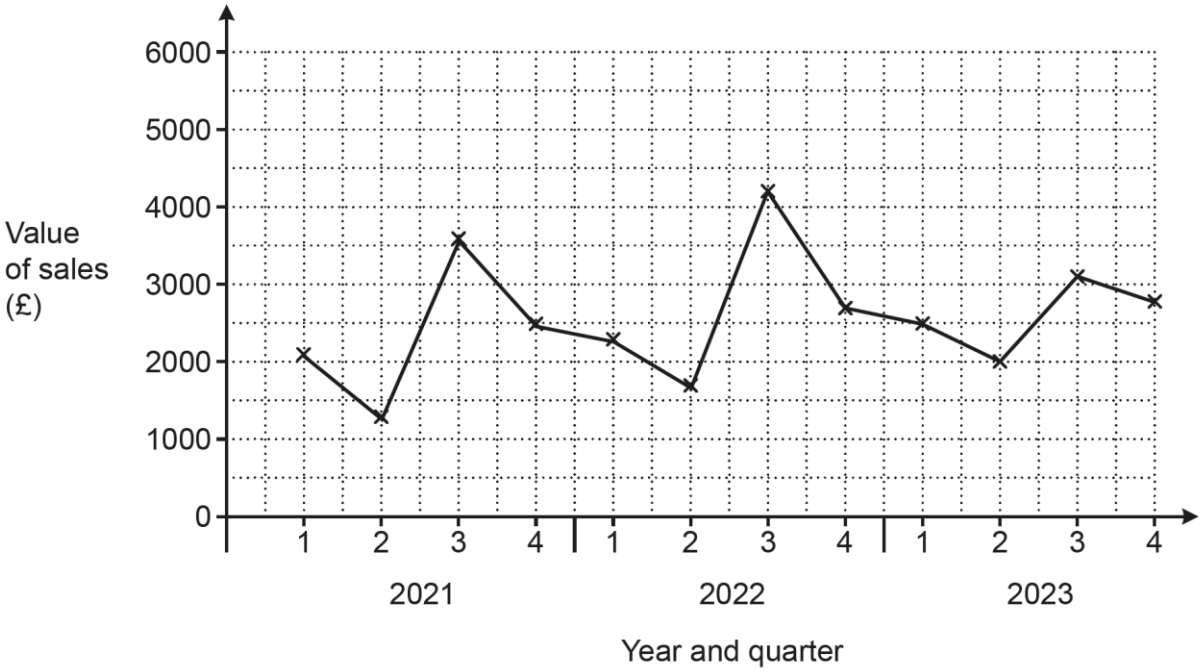
Most candidates attempted this question, but very few showed an idea of how to answer it.

As candidates were not directed towards circumference, few calculated it for either wheel and most just tried as many calculations with 130, 46 and 69 as they could, but without success. A number of candidates calculated the area of the wheels.

Some correct partial calculations were seen, but then spoiled such as (130 ÷ 46) ÷ 69. A few candidates worked out 130 ÷ 46 = 2.826..., but then used 2.8 in further calculations (rather than keeping it on their calculator) causing their response to not be integer.

Question 21 (a)

21 The graph shows the value of sunscreen products sold in a shop for each quarter from quarter 1 of 2021 to quarter 4 of 2023.



(a) Make **one** comment about the **annual** variation shown in this graph.

.....

..... **[1]**

Candidates appeared unsure about annual variation. Many responses said such things as 'it went up and down' or '2022 had the best sales'.

Question 21 (b)

(b) In one of these years, quarter 3 was very cloudy.
Write down which year this is most likely to be.
Give a reason for your answer.

Year ..... because .....

..... **[1]**

This was often correct and many chose 2023 because the Q3 sales were down on other years (this was often poorly expressed, but the intention was marked).

Question 21 (c)

(c) The manager of the shop says that the value of sales in quarter 4 of 2024 will be £3100.
What assumption has the manager made?

.....

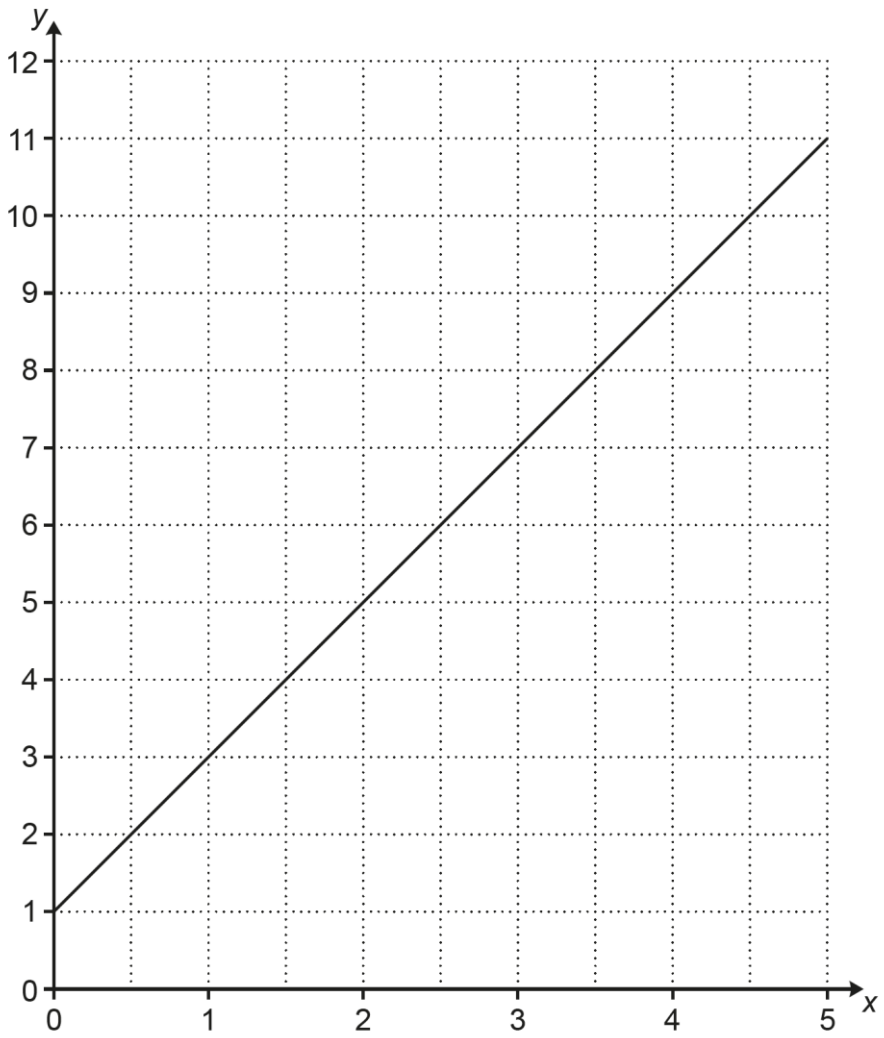
..... **[1]**

Candidates seemed unsure about what was meant by an assumption. Answers such as 'sales went up by £300' were often seen, along with references to the weather.

The general impression was that candidates were unfamiliar with interpreting this type of graph.

Question 22 (a)

22 Part of the graph of $y = 2x + 1$ is drawn on this grid.



(a) Write down the y-intercept.

(a) ..... **[1]**

Most candidates offered an answer and many were correct, however equations, coordinates that weren't (0, 1) and numbers other than 1 were common.

Question 22 (b)

(b) The line continues to the right.

Will the line pass above, below or through the point (40, 80)?
Show how you decide.

The line $y = 2x + 1$ will pass ..... the point (40, 80) because .....

.....

..... **[2]**

Some candidates did not attempt this question and many who did lacked a clear strategy to respond to it.

Some referred to a point on the grid that the line passed through and scaled this up, not recognising that the graph did not show direct proportion.

Some referred to odd and even coordinates. Very few chose to substitute 40 into the equation of the line.

Question 22 (c)

(c) Write down the equation of a line that is parallel to $y = 2x + 1$.

(c) ..... **[1]**

Almost half of the candidates did not respond to this. Of those that did, very few had a coherent strategy.

Common errors were $x = 2y + 1$, or to keep the constant as 1 and change the x-coefficient.

Question 23 (a)

23 A number, r, is 6.2 when rounded correct to 2 significant figures.
A number, h, is 6.2 when truncated to 1 decimal place.

(a) Write down a possible value of r that will definitely be less than all possible values of h.

(a) $r =$ ..... **[1]**

Some candidates did not attempt this question and very few correct responses were seen. Common wrong values were 6, 6.1 and 6.2. Other responses seen were 3.1, 9 and 10. Very few candidates showed any working.

Question 23 (b)

(b) Write down a possible value of h that will definitely be greater than all possible values of r.

(b) $h =$ ..... **[1]**

Some candidates did not attempt this question and very few correct answers were seen. Some wrong values were 6, 6.21 and 6.22, along with others such as 2, 6.4 and 7. As with (a), very few showed any working.

Question 23 (c)

(c) Write down a possible value of r and a possible value of h such that r is greater than h.

(c) $r =$ ..... and $h =$ ..... **[1]**

Many candidates did not attempt this question. Of those who did, only a small proportion were given a mark.

There was no apparent pattern to the responses. Few candidates showed any working, although a very small number of diagrams were seen.

Question 24

24 A restaurant menu has 4 main courses and 3 side dishes.
For their meal, each customer chooses 1 main course and 1 side dish.

Main course	
Beef burger	£6
Lasagna	£7
Veggie burger	£5
Turkey stew	£6

Side dish	
Salad	£2
Chips	£3
Garlic bread	£1

Work out the percentage of possible meals that cost less than £8.

..... % **[4]**

This question was common with the Higher tier J560/06.

Many candidates gained marks here. The best responses showed clear lists of combinations and identified the totals in each list. Some candidates went straight to [4 × 3 =] 12 meal combinations and then listed the combinations below £8.

Many showed their number of meals below £8 ÷ their total number of meals [× 100] to score a method mark.

Some candidates misread the question and found the number of meal combinations costing £8 or less.

Less confident candidates could not convert their fraction to a percentage. Others worked only with prices and did not make combinations.

Some reached $\frac{4}{12}$ [× 100], but gave the answer as 30%, losing the final accuracy mark.

Question 25 (a)

25 A sheet of A4 card weighs 1.19×10^{-2} kg.

(a) Work out the weight of 500 sheets of the A4 card.

(a) .....kg **[2]**

This was another question common with the Higher tier J560/06.

It was often done well and many candidates scored two marks.

One error was just calculating 1.19 × 500, neglecting the 10^{-2}.

It was apparent that a few candidates either did not have a calculator, or did not know how to use it with standard form numbers.

Question 25 (b)

(b) Card is classified using W, the weight in grams per square metre (gsm).

$$W = \frac{\text{weight in grams}}{\text{area in square metres}}$$

A sheet of A4 card is a rectangle that is 21 cm by 29.7 cm.

Calculate W for this A4 card.

(b) ..... gsm **[4]**

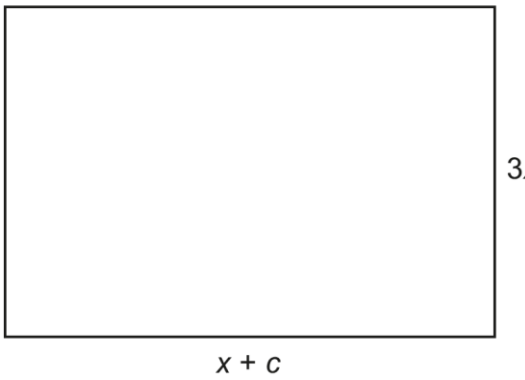
Many candidates attempted this question, but very few were successful.

Many of those who found the area of the card first in cm^2 then either struggled to convert it to m^2 or made no attempt to. Candidates are advised to change linear measurements to the required unit before undertaking a calculation.

Many did not convert the weight of a sheet of card from kilograms to grams.

Question 26

26 The area of this rectangle can be written as $ax^2 + bx - 10$.



Not to scale

Find the values of a, b and c.
You must show your working.

$a =$ ..... , $b =$ ..... and $c =$ ..... **[5]**

Many candidates attempted this question, but most showed no clear strategy to answer it.

Some realised that they had to multiply the expressions for the two lengths, but very few included brackets. A small number correctly multiplied the two expressions and using a grid was often the most successful method for doing this.

Quite a few candidates wrote in numbers for a, b and c with no supporting working. These were invariably incorrect.

Some candidates did not realise that the expression was for area and attempted an expression for either a partial or a complete perimeter.

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