MATHEMATICS

Paper 4021/01
Paper 1

Key messages

Emphasise more the vocabulary of mathematics.

Encourage reading questions with care to find possible and meaningful answers.

Educate candidates to write down all calculations before turning to the calculator

General comments

Many candidates made a good effort at the questions and there were few questions not attempted. However, questions requiring mathematical terms, numbers 20 and 21b, and construction interpretation, number 23, were omitted by many candidates. While most did show working where necessary, or at least to enable them to achieve a mark or two even if answers are incorrect, there is still a need for many to show the steps of a calculation prior to using their calculator.

One concern is where candidates write over an answer (often the original in pencil) which makes it difficult to work out the intended figures.

Questions in context, for example numbers 6, 9, 11, 18 and 22, often had answers which were totally unrealistic for the situation. Also diagrams, even if not to scale, must have answers of lengths or angles which fit the diagrams.

Candidates must answer what the question asks in order to gain any marks. **Question 5** with no letter given and a fraction rather than a mixed number in **Question 17** were clear cases of marks often unnecessarily lost.

Truncating answers or just giving a two significant figure answer, as often occurred for **Question 19**, again meant marks were lost when candidates fully understood and had worked correctly the solution to a problem.

Comments on specific questions

Question 1

While this very friendly starting question to the paper was very well answered there were a number of candidates who omitted the letter in the answer. Also some added all items instead of subtracting $2t$ while other responses were $7t^3$ or they lacked a single coefficient of t.

Question 2

This question on temperature needed careful reading as there were two lines of information before the question. Many candidates seemed to take the two items of data and performed inappropriate calculations often producing a totally unrealistic answer for the highest temperature as 128 °C or even 120.8 °C. Other errors were just changing the sign on one of the values to give −63.8 or 57, while just 63.8 was also seen. Some did attempt a correct calculation but often ended with an answer of −6.8.

Question 3

The topic of bearings is often not well done and this straightforward question was no exception. Many clearly did not know which angle to measure resulting in working from *B* instead of *A*. The most common error was to give the distance from *A* to *B*, 6.5 cm possibly because due to no protractor. A quite generous error of ±2° was allowed so a common answer of 110° did not score. Reading the wrong scale on the protractor led to the response at or close to 67 °C.

Question 4

(a) There were few errors on this part although doubling, rather than squaring 24, was seen at times.

(b) Cube root was not so well known but many did find it correctly. Some gave a square root instead which might suggest they had rather basic calculators, while others multiplied or divided the square root by 3.

Question 5

The probability question was very poorly done, mainly due to many candidates not doing what was asked, namely writing down a letter from the probability scale.

(a) Most were able to find the correct probability and often chose the correct letter, although *A* and *D* were seen at times.

(b) This was poorly done, often through not reading the question that it was not take a blue ball.

Question 6

(a) Most candidates read the distance scale correctly but the common error was not reading the question and giving the distance, 2.4 km from home to school. Careless reading of the scale meant 1.3 was seen at times.

(b) The wording of this part seemed to confuse quite a number of candidates. While 5, 15 or 20 minutes were the common wrong answers, there were quite a lot of totally unrealistic responses.

Question 7

Ordering of data was done well with most correct. Many showed the decimal conversions which helped and generally those who made an error gained 1 mark. Some, after converting to decimals, thought that 0.8 was the lowest, presumably as it was the shortest number. Reverse order was also seen at times.

Question 8

The question only required the angle for 'Walk' but some found all the angles or attempted to draw a pie-chart or even a bar chart. Most found the total but that was their answer, while after the correct fraction written quite a few multiplied by 100 instead of 360°.

Question 9

Some made the error of multiplying 30 000 by 68.14 even though this produced a totally unrealistic amount of dollars. The majority of candidates divided and it was rare for them then to make an error.

Question 10

Kilograms to grams was done well although some used 1 kilogram equal to 100 grams. Few managed the area conversion correctly with 140 and 1400 being common errors. Some candidates squared the value to give 1.96 or other answers with figures 196.

Question 11

The average speed calculation was very poorly done, even though the vast majority knew they had to divide distance by time. Just dividing by one of the clock times, rather than a time period, was often seen. Others made some progress with a correct time period but could not sort out the units. Dividing by 90 gave an

unrealistic speed of 1.5 km/h while not converting 30 minutes to a decimal was also quite common. There are still quite a number of candidates suggesting there are 100 minutes in an hour by using 1.3 for the time.

Question 12

Although many candidates clearly had no understanding of scatter diagrams and line of best fit, some did produce a line with negative gradient. However many seemed to feel the line had to pass through one or both corners of the grid and consequently came outside reasonable limits. Reading the scale caused problems at times where for example three lines above 6000 was recorded as 6300 instead of 6600.

Question 13

(a) This was quite well answered but taking 6^0 as 6 or 0, instead of 1, were seen quite often. Others clearly did not understand indices since responses of 12 and 12^2 were seen.

(b) This was not well answered but those who got it correct showed a variety of the acceptable forms. Many did not understand negative indices or felt they just had to give $\frac{1}{5^4}$. From a variety of incorrect answers 625, −625, $5^{\frac{1}{4}}$, -5^4 0.16 and 1.6 were the most common.

Question 14

(a) A few candidates did not read the question carefully and shaded 1, 3 or 4 squares. Around one third of the candidates shaded the correct squares. Symmetry is clearly not understood by a significant number shown by quite a lot of no responses or just guesses. There was a wide variety of incorrect responses with most correct for the square in the first column but failing to find the other square.

(b) Lack of understanding symmetry was evident again here with some candidates giving word answers such as ‘line’, ‘shape’ or ‘congruent’ or an angle such as 180°. One mark, usually the lines of symmetry, was most often awarded, while 4 or 1 were most commonly seen in one or both parts.

Question 15

(a) While most candidates could work out the mode, 18, the first in the list, was often seen. There was also a few who attempted mean or median in this part.

(b) Most who knew the term ‘mean’ gained the marks for this part although again some attempted the median. Some did not divide the total by 10 or incorrectly added the data items. There was quite a high proportion of no responses for this standard question.

Question 16

Surface area of a solid was not understood by most candidates. Many found the volume while some gave just the area of one rectangle. Others found and added the three different areas without doubling or regarded it as an open box so just five areas were totalled. Of those who did find six areas it was common for four the same, usually 4 by 15, to be included. Even ‘pi’ was seen in some responses.

Question 17

Although subtraction of mixed numbers is about the most difficult of fraction questions, this was correctly done and shown by most candidates. Quite a few worked correctly but lost the last mark by not changing the improper fraction to a mixed number which was clearly requested in the question. While use of decimals was rare, some did revert to a decimal answer which lost the third mark. There were quite a significant number of candidates who did not even attempt to find a common denominator or could not correctly change mixed numbers to improper fractions.

Question 18

There are still a significant number of candidates who attempt a simple interest calculation when the question says compound interest. The few who knew the formula for compound interest (compulsory in the 2020 syllabus) and dealt with it correctly usually reached the correct answer. Unfortunately some of those then found the interest by subtracting 750. Others for some reason added 750 to the correct answer. Year on year calculations while successful for some did produce errors for others.

Question 19

The Pythagoras calculation was poorly done with quite a number of candidates thinking it was a trigonometry question. Others squared the lengths and then added leading to an answer greater than the hypotenuse, clearly impossible if they had looked at the triangle. Although the lengths on the diagram are just two figures, answers need to be three or more figures so those who just gave 7.6 without more accuracy seen lost a mark.

Question 20

(a) Most attempted to find the gradient from 2 points with difference in y's divided by difference in x's. While successful for some, many made errors or reversed the calculation. Few just used the diagram to find vertical divided by horizontal for two clear points at the intersection of grid lines. The use of end points was a problem since the top point could not be read accurately so should not have been used. Certainly far too many had no idea what was meant by 'gradient', as evidenced by the large number of no responses.

(b) Again the continuation to the full equation was poorly done with many not connecting with **part (a)**. Those who did read the value +1 from the graph often gained the mark but some of them did not substitute their answer to **part (a)** for *m* in the equation. Others tried to start the question again using substituted points and invariably failed to reach the correct answer. There were also many 'No Responses' on this part.

Question 21

(a) Many candidates had difficulty identifying a rhombus from the quadrilaterals with the parallelogram letters being the most common error.

(b) There were a very large number of 'No Responses' for this part. Rhombus was the most common incorrect response and there were a lot of cases of polygons which were not quadrilaterals as well as the word 'quadrilateral'.

(c) At least half of the candidates clearly did not know the meaning of congruent and common errors were to select the two trapezia or the two parallelograms as having that property.

(d) The final part was well done although this was probably due to the correct answer to **part (c)** being also allowed as similar figures for about half the correct responses. A few thought the two trapezia were similar.

Question 22

(a) There were very few fully correct answers to forming an expression with many clearly not understanding the difference between expression and equation. Just adding the prices was a common error but many did form the correct expression before losing a mark by making it into an equation.

(b) The solution to the equation was quite well done but rarely from equating the expression in **part (a)** to 60.55. Nearly all who made progress went back to the original information, working out the cost of the magazines and subtracting from the total cost. Some got no further than that but many correctly divided by 3.15. The common error for no marks was to multiply 60.55 by 8.

Question 23

Many candidates did not attempt the construction question, possibly in some cases due to lack of equipment or not understanding the two descriptions given as a single statement using bullet points. The angle bisector described as a locus confused many candidates who bisected the wrong angle or constructed the bisector of a side. Most who gained one or two marks did so from an arc from point *R*, although there were many cases of lots of arcs drawn, some at 13 cm since the scale was not applied. Most did not clearly mark the position of the bird table, but full credit was given for the intersection of a correctly constructed bisector and a correct arc. Shaded regions, seen a number of times did not score more than 3 marks.

MATHEMATICS

Paper 4021/02
Paper 2

Key messages

To succeed in this paper candidates need to have completed full syllabus coverage, remember necessary formulae, show all working clearly and use a suitable level of accuracy. Particular attention to mathematical terms and definitions would help a candidate to answer questions from the required perspective.

General comments

This paper gave all candidates an opportunity to demonstrate their knowledge and application of mathematics. Most candidates completed the paper making an attempt at most questions. The standard of presentation and amount of working shown was generally good. Centres should also continue to encourage candidates to show formulae used, substitutions made and calculations performed. Attention should be made to the degree of accuracy required. Candidates should be encouraged to avoid premature rounding in workings as this often leads to an inaccurate answer and the loss of the accuracy mark. Candidates should also be encouraged to read questions again to ensure the answers they give are in the required format and answer the question set. When candidates change their minds and give a revised answer it is much better to rewrite their answer completely and not to attempt to overwrite their previous answer. Candidates should also be reminded to write digits clearly and distinctly.

Comments on specific questions

Question 1

(a) (i) This part was generally answered well with nearly all candidates able to interpret the pictogram and state Friday as the correct day when most skirts were sold. A very small minority gave Tuesday as the answer, which was the day for the least number sold.

(ii) This part was also generally answered well. Common errors included 2.5 or $2\frac{1}{2}$ from the correct number of symbols without using the key, or 15 by miscalculation.

(iii) This part was generally answered well. Common errors included answers from $40 + 25$ or 1.5 from not using the key.

(b) The majority of candidates understood the overall method required but only a minority scored full credit. This was mostly the result of poor notation for the intervals of time. Acceptable answers for a period of time are 58.5 hr, 58 hrs 30 mins. A number of candidates were able to score partial credit for 9 hr 45 min. Many errors were made in calculating the number of hours the shop was open each morning and afternoon with many stating the morning interval as 3.30 instead of 3 h 30. The most common error was to write the total number of hours each day, 9 hrs 45 mins, as 9.45 and then proceed to multiply this by 6, thinking they were working with decimals, not minutes.

(c) This part was reasonably well answered with many candidates gaining full credit. Working was often set out clearly. A very common error was to just multiply the 38 and 25 by 11.40, not multiplying by the number of people, hence obtaining 718.2. Some candidates multiplied by 6 or 7 at the end as they did not realise they already had the weekly figure. A few candidates, having calculated correctly, rounded to 2303 without showing the exact answer.

(d) This ratio question was challenging for some candidiates, due to the given value, 48, being the number of blue T-shirts rather than the total number. A very common error was to find $5+4+1=10$ and then calculate $\frac{48}{10}\times 4=19.2$. Answers of 48 from $19.2+24+4.8$ were common. Those candidates who appreciated the context of the question and started their method by $\frac{48}{4}=12$ were generally successful.

(e) Many candidates found this question challenging and it proved to be a good discriminator. A good number calculated the total selling price and scored the first method mark for \$842.5 and many earned the second mark for the profit \$342.5 but then were unable to work out the percentage profit. Common errors included $\frac{500}{842.5}$, $\frac{342.5}{100}$, or $\frac{500}{342.5}$. Candidates who used the $\frac{342.5}{500}\times 100$ method usually gained full credit. Those who used $\frac{842.5}{500}\times 100$ often scored partial credit, forgetting to subtract 100.

Question 2

(a) This part was generally answered well although some numerical errors were made in the individual calculations. As each part was an exact amount of money the answers should not have been rounded.

(b) (i) A significant number of candidates were able to find the area of this composite shape based on two rectangles joined together. However, this question was not generally answered well, even though the working indicated that most candidates know how to find the area of a single rectangle. Common errors included multiplying the four given values as two separate pairs, for example, $5.3\times 1.8+2.4\times 3.2$ hence finding the area of overlapping rectangles. Even when the diagram was split into two rectangles, errors were made in finding the dimensions of their rectangles; often just halving the given sides rather than apply the necessary subtraction. Less able candidates just multiplied or added all the given numbers.

(ii) A good number of candidates were able to gain full credit either with the correct answer or by correctly following through from their previous incorrect area. Common errors included just calculating $500\times 8=4000$ or $500\div 8=62.5$ but not using their area, and $12.9-8$.

(c) This part was generally answered well although common errors included incorrect measurement of the given rectangle and incorrect application of the given scale.

(d) This part was answered reasonably well. Common errors included incorrect substitution into the correct formula with adjacent sides being added rather than the parallel sides. Some candidates split the diagram up into a rectangle and triangle but often made errors in calculating the height of the triangle or forgot to halve for that area. Less able candidates again just multiplied or added all three given numbers together,

(e) This part was generally answered well and many correct answers were seen. Common errors included the use of $2\times\pi\times 80$ or $\pi\times 40^2$ with a variety of other incorrect formulas seen.

Question 3

(a) (i) This part was generally answered well and many correct answers were seen. Common errors included the omission of 1 and/or 18, listing the factor pairs, and using prime factor decomposition and stating the answer as $2\times 3\times 3$.

(ii) This part was generally answered well with 36 being the most common correct answer, although common errors included 25, 40, 6, 6^2, 7 and 7^2.

(iii) This part was generally answered well although common errors included 91, 93, 95 or a number out of the given range.

(b) (i) This part was generally answered well.

(ii) This part was generally answered well.

(c) The majority of candidates were able to gain full credit. Common errors included not rounding their answer to 2 decimal places, 2.32, 2.326, 232.6. Another common error was to omit brackets when entering the calculation into the calculator and hence the incorrect answer of 7.232 or 7.23 was often seen.

(d) (i) This part was generally answered well with the majority of candidates able to find the HCF of 36 and 90, and many others managing to gain partial credit for giving a common factor 2, 3, 6 or 9 as the final answer or for finding the prime factors of each number. Many chose to find the prime factors of 36 and 90 using a double table method. This often led to the LCM given as the final answer. Candidates should perhaps be encouraged to use separate factor tables to avoid this error.

(ii) This part was not answered as well as the previous part. A small but significant number of candidates gave the answers to **part (d)** reversed. Common errors included 540, 720 and 3240.

(e) (i) This part was generally answered well although common errors included 0.042, 4200 and 0042.

(ii) This part was not generally answered well, although many candidates managed to gain partial credit for answers with figures 889 such as 889 000. A significant number made errors changing the standard form numbers. Other common errors included changing 889 000 incorrectly to standard form, often as 8.89×10^{-5}. No working and 8.9×10^{5} as the answer was seen sometimes.

Question 4

(a) (i) Many candidates answered this question well, carefully adding the ten extra results in the tally column and then accurately completing the frequency column. The most common errors came from not reading the question carefully and only completing the frequency column for the given tallies or completing the frequency column for only the 10 pieces of extra data. Other errors included only completing one of the two columns, writing the frequencies as sums, and small slips in placing the extra data in the wrong rows.

(ii) This part was not generally answered well and the common errors included the incomplete answers of 0 to 5 and 5–0. A very common error was the incorrect answer of 6, found from the range of the frequencies ($12-6=6$).

(iii) This part was not generally answered well, although most candidates knew that the median required finding a middle value. The best responses involved recognising that the 25th and 26th values could be found in the 4th row of the frequency column and thus, 3 glasses of water. Other candidates used a correct but rather long method of writing out all 50 results in numerical order and again finding the average of the 25th and 26th values. However there were many incorrect responses that usually involved finding the median of the 6 numbers in either the frequency column or the number of glasses column or the median of the 12 numbers in both of these columns. Other errors included candidates finding the wrong statistic, usually the mean.

(iv) Although a number of candidates answered this part correctly, there were many candidates who possibly did not read the question carefully enough. Common errors included using the number of glasses,leading to $\frac{4}{50}\times100=8$, an answer of 8 from the frequency, or leaving the answer as $\frac{8}{50}$.

(v) Whilst some candidates found the correct probability and wrote it as a fraction in its lowest terms, many were unable to find the correct frequency from the table of students drinking *fewer* than 2 glasses of water. Common errors included $\frac{12}{25}$ from $\frac{8+6+10}{50}$ (two or less glasses) and $\frac{3}{25}$ from $\frac{6}{50}$ (two glasses).

(b) This part was generally answered well with many candidates correctly showing that they could deal with the unit conversion and interpret all of the information given in the problem. Most candidates were able to gain partial credit for either a correct conversion, usually 2 litres to 2000 ml, or for $250 \times 5 = 1250$. The most common errors seen included 1 litre = 100 ml or using only 1 glass.

(c) Candidates found this question on bounds challenging. Common errors included $1.4 \leqslant w < 1.6$, $0.1 \leqslant w < 1.5$, $1.495 \leqslant w < 1.505$, and $1450 \leqslant w < 1550$.

(d) This part was generally answered well with a good number of candidates showing use of the correct formula, $\pi r^2 h$, and being able to find an accurate volume of the glass. However, a small yet significant number could only be awarded partial credit because they used inaccurate values for π. Common errors included using 7 cm for the radius rather than 3.5 cm, using an incorrect formula for the volume, finding the surface area of the cylinder, and calculating $15 \times 7 = 105$.

Question 5

(a) (i) This part was generally answered very well with many candidates able to draw an accurate triangle with clear and accurate arcs. Common errors included the omission of or erasing the required construction arcs, drawing inaccurate arcs resulting in inaccurate lengths, drawing both sides as 5 cm or 7 cm, and constructing the perpendicular bisector of *AB*.

(ii) This part was generally answered well. Common errors included reading the protractor incorrectly and giving answers such as 130° or 40°, incorrectly assuming angle *ACB* was a right angle and using trigonometry to find angle *B* rather than measuring it, measuring the wrong angle, giving the sum of the angles as 180°, and finding the perimeter of the triangle, usually as 21 cm.

(b) (i) This part was answered reasonably well with a good number of candidates successful in finding angle *PQS* correctly. Common errors included 123°, incorrectly assuming that angle *PSR* was 90°, using triangle *PSR* as equilateral, the misconception that angles *PQS* and *QSR* were alternate and incorrect use of the angle notation.

(ii) This part was generally answered well but with a fewer number of candidates successful in finding angle *PSR* correctly. Common errors included answers of 66° after finding angle *PSQ* but omitting to add 32°, answers of 90° and the incorrect use of 360° rather than 180°.

(c) (i) This part was generally answered very well. Common errors included $180 - 63 = 117$ and $360 - 63 = 297$.

(ii) A significant number of candidates found this question challenging and it proved to be a good discriminator. Those who recognised the use of trigonometry were usually successful although a small yet significant number were unable to rearrange their formula, or lost the accuracy mark due to premature approximation.

Question 6

(a) The table was generally completed very well with the majority of candidates giving the three correct values. However the point at $x = -1$ was more challenging with a large proportion of candidates dealing with the negative sign incorrectly within the x^2 term and giving $y = 7$.

(b) This was well answered by many candidates with accurate, smoothly drawn curves. Most others gained partial credit, usually for one point being plotted out of tolerance, or for just plotting the points without drawing the curve through them or for joining the points with ruled lines.

(c) This part on using the graph to solve the given equation was well answered. There were many correct answers with candidates reading the values off accurately from their curve. A few candidates misread the scale and a few candidates did not answer this part. Some candidates tried to solve the equation algebraically, which was not the required method and was rarely successful.

Question 7

(a) (i) This part was generally answered well with the vast majority of candidates able to write down the next term in the given sequence. Common errors included 37 and 22.

(ii) This part was generally answered well although candidates should be advised to distinguish between giving a term to term rule and finding the *n*th term. Common errors included 5, $n-5$, $37-5n$, 'subtract minus 5', add 5 and $-5n$.

(b) A significant number of candidates found this question challenging and it proved to be a good discriminator. Only the more able candidates could substitute correctly into this quadratic sequence. Many related it back to the sequence in the previous part, giving answers such as 47, 42, 37 and substituting 32, 27 and 22 into the expression. Others chose a starting number and then added 2 for the following terms. There were also many algebraic answers involving n^2 and n, notably n^2+n, n^2+2n, n^2+3n.

(c) (i) This part was generally answered well with the vast majority of candidates able to complete the table, either by drawing further patterns or recognising that they increased by 4 after counting the lines in the given patterns. Less able candidates struggled to find the number of lines in the patterns which were not drawn. A common error was to assume that the pattern would increase by 6 each time.

(ii) This part was generally answered well. Many candidates knew the $a+(n-1)d$ rule but this was sometimes spoilt by incorrect expansion and simplifying, leading to $4n\pm10$ or $4n\pm7$. Common errors included $n+4$, $2n+4$, $6n$, $n+6$ and a number of numeric answers.

(iii) A significant number of candidates found this question challenging and it proved to be a good discriminator. Few candidates were able to give a clear response here. The explanation required that the number of lines was referred to rather than ambiguous statements about numbers and patterns. Some did refer to even numbers but did not link this to the number of lines. The most common misconception was that the number of lines should be divisible by 4. Some ignored the instruction that no working was required and gave responses involving calculations.

Question 8

(a) (i) This part was generally answered well with the majority of candidates demonstrating that they could give a co-ordinate in the third quadrant. Common errors included (2, –5), (–2, 5), (2, 5) and (–5, –2).

(ii) This part was not generally answered as well. Common errors included sign errors such as $\begin{pmatrix}3\\-2\end{pmatrix}$, $\begin{pmatrix}-3\\-2\end{pmatrix}$, and incorrect vectors such as $\begin{pmatrix}-7\\-8\end{pmatrix}$ and $\begin{pmatrix}-5\\-5\end{pmatrix}$.

(b) (i) The majority of candidates were able to identify the given transformation as an enlargement but not all were able to correctly state the three required components. Candidates should understand that the correct mathematical terminology is required. The identification of the centre of enlargement proved the more challenging with a significant number omitting this part, and (0, 0), (2, 3) and (1, 1) being common errors. Those who drew rays connecting the points on the triangles were the most successful at finding the centre of enlargement. The scale factor also proved challenging with –2 and $\frac{1}{2}$ being the common errors. A small number gave a double transformation, usually enlargement and translation, which can gain no credit.

(ii) This part was generally answered well although a common error was to draw a triangle of the correct size and orientation but in an incorrect position. Candidates should remember that once they have chosen a point on the triangle and translated it, the other points on the triangle's image need to be relative to the original. Other common errors included drawing one vertex at (4, –2).

(iii) This part was generally answered well although common errors included rotations drawn from a variety of incorrect centres, often (1, 1) and rotating through 180°.

Question 9

(a) (i) This part was generally answered well with the majority of candidates demonstrating a good understanding of substitution and dealing with negative numbers. Common errors included 34, $40-2-3=35$, $58-2-3=53$ and $58-23=35$.

(ii) This part on changing the subject of the given formula proved to be more challenging. The most common error was an incorrect first step of $c-2b=5a$. A variety of other algebraic and transposition errors were seen. Less able candidates often tried to calculate a numerical answer for *a* using values from the previous part.

(b) This part was generally answered well with the majority giving the correct factorisation. Common errors included $(x+4)$, $x(3+12)$, $3(x+12)$, $3(x+9)$, $15x$ and 15. Another common error was to treat the expression as an equation, either $3x=12$ or $3x+12=0$, leading to $x=\pm 4$ as an answer.

(c) This part was generally answered well with the majority giving the correct expansion. Common errors included spoiling their expansion by combining terms, giving a final answer such as $2x^2y$ or $2x^3y$, multiplying $x\times x$ as $2x$, and answers such as $y=\frac{x}{2}$.

(d) A significant number of candidates found this question challenging and it proved to be a good discriminator. Many candidates did not appreciate that an algebraic approach was needed. The more able candidates could often give a well presented and succinct method and answer. Those who started with the initial equation of $n+2n+2n+3=58$ usually reached the correct solution. Less able candidates often left this part blank or adopted a trial and improvement strategy using numbers, which was rarely successful. Common errors included $58\div 3=19.3$, incorrect initial equations of $2n=58$, $6n=58$, $2n+3=58$, and the use of n^2 and/or n^3.