MATHEMATICS SYLLABUS A (MAURITIUS)

Paper 4021/01
Paper 01

Key messages

Prioritise mental arithmetic skills in order to improve non-calculator working.
Ensure all topics in the syllabus are covered.

General comments

There were a lot of no responses this session and also attempts at questions which showed lack of familiarity with the topic involved. Basic knowledge of mathematical language such as equation and expression was often lacking and prevented many candidates from making a positive start on questions.

Concern should be given to presentation and clarity of working with clear, identifiable figures in particular to avoid confusion between 4's and 9's as well as 1's and 7's. Overwriting figures and working makes it difficult at times to assess solutions. Candidates should delete any work they do not wish to be considered.

Comments on specific questions

Question 1

While the great majority of candidates understood the value of the position of the 3 in the number, many only gave the column heading rather than the specific value of the 3.

Question 2

This basic buying and change question was well done but there were two common errors seen. Careless reading of the first line meant only the cost of one book was subtracted from $20. Of those tackling the question correctly, many had the subtraction resulting in the answer $4.60.

Question 3

(a) The question was correctly answered by the majority of candidates with 17 500, 17 480 and 17 460 being common errors. Some did not understand rounding which resulted in responses of 16 and 69 occasionally.

(b) Rounding to one decimal place was not as well done. Many wrong answers had more than one figure after the decimal point whereas others moved the decimal point, 50.73 and 50.3 being examples. Others were closer to being correct with 5.0 or even 5.1 with trailing zeros.

Question 4

(a) While the question was correctly answered by the majority of candidates there was a significant number who did not understand the square root notation. Some simply divided by 2 while others understood that 12^2 was equal to 144 but left 12^2 as their answer.

(b) There was a better response to this part with the vast majority understanding that $5 \times 5 \times 5$ had to be worked out. Unfortunately, some thought that was enough for the answer even though the question asked for the value. Some thought the exponent meant multiplication resulting in them working out 5×3.

Question 5

(a) Most candidates understood the concept of lines of symmetry, but the question was not well answered overall. Many simply gave one vertical line and were unable to visualise the other two lines. Where three lines were seen, the accuracy was often beyond tolerance, so they did not score. A small percentage simply had incorrect lines.

(b) Those who had **part (a)** correct were more likely to gain the mark for the order of symmetry. However, many did not appear familiar with the idea of 'order of rotational symmetry' with many candidates giving one as their answer.

Question 6

(a) Those who knew the conversion of a simple fraction to a decimal were relatively few. Some tried to work it out by division, but this often resulted in incorrect answers such as 3.4, 0.3 or 0.25.

(b) Knowing that a fraction with denominator 100 meant the numerator was a percentage was quite well done. However, there were a significant number of candidates with answers of 0.09, 0.9 or 90.

(c) A similar percentage to **part (b)** were successful in changing a percentage to a decimal number, probably mostly the same as those gaining the previous mark. 0.143 was the most common incorrect answer.

Question 7

The major difficulty on this question was indicating the probabilities on the scale rather than finding the probabilities. Often the probability scale has 10 divisions, but the 8-division scale was more appropriate, particularly for **part (c)**. **Parts (a)** and **(b)** were understandably better done than **part (c)** but, even for these simple parts, the arrows were usually far from the correct place. In particular, the arrow for B was often seen to show a probability of 1. **Part (c)** was understandably the least well done part as there was some working out of the probability first, quite often arrows were shown but not labelled or the same label was placed on several arrows. There was a high proportion of no responses on all parts.

Question 8

If this question had been in three parts, asking for all the factors of 144 and multiples of 9 before asking for those in common, it would probably have been answered better. However, some questions expect a higher level of interpretation and organisation of working to reach the solution. Only a very small number of candidates managed to work out all five numbers in the answer. While often 1 or 2 marks were gained from finding some of the five numbers or from a list of factors of 144 or more commonly multiples of 9. Incorrect numbers included meant these part marks could not score. Added to these difficulties many confused factors and multiples.

Question 9

(a) The difference between two temperatures was quite well done, although arithmetic errors were quite common. Otherwise, some added the temperatures to find −18.

(b) While not so well done as **part (a)**, again there was a good response to finding the value of the temperature. The common error was to get 38 or −38 from various combinations of the numbers −15 and 23. Having to relate the question to the data at the start was also an evident problem for quite a number of candidates. Even the time, 10 pm, was seen in some calculations.

Question 10

This question assessed candidates' understanding of probability based on a ratio and many simply wrote down the correct answer. However, a very common wrong answer was $\frac{2}{3}$ from using the numbers in the ratio while some wrote the answer as a ratio. Once again, a lack of understanding that probability had to be between 0 and 1 was evident with answers often greater than 1.

Question 11

Weakness in understanding stem-and-leaf diagrams reduced the success in this question. Also, some confused range, mode and median.

(a) While some candidates gave the range 72–30 rather than an actual value from a subtraction, there was quite a good response for this part. Unfortunately for some they got the answer to the calculation, 72−30, incorrect.

(b) Those who understood mode usually had this correct but again the diagram added to the problem as 4 was often seen. Otherwise, this part was quite well understood.

(c) Only those getting high marks overall had some success with this part, and many did not attempt it. An answer of 11% from $\frac{55}{100}\times 20$ was very common and $\frac{20}{55}\times 100$ was also seen.

(d) (i) Again the difficulty with stem-and-leaf meant an answer of 2 was common. While many did realise the median was between two values in the table, answers of 51 and 53 were seen quite often.

(ii) Very few candidates gained the mark for this part as it depended on understanding the effect on the median of an entry to the shop which was less than the median in the previous part. The common answer of less customers was not enough as it had to relate directly to the median. Some were successful when they found what the median would become.

Question 12

(a) While there were some clear, correct responses to forming and solving an equation based on the parallelogram, these were mainly from those scoring high marks on the paper as a whole. Many candidates did not seem to understand the difference between an expression and an equation. Those who did have an equation often had the sum of the two angles equal to 360°, 90° or even 0°, rather than 180°. Once a correct equation had been seen most either found the correct value for x or gained a further mark if they made just one error. Those who had an incorrect equation often gained 1 or 2 marks for resolving their equation.

(b) Most realised that $3x + 10$ was the largest angle, or at least observed that on the diagram, so that mark could be gained from their answer to **part (a)**. Some had a negative angle which could not be awarded a mark. Many simply left the answer as $3x + 10$.

Question 13

The vast majority of candidates made some progress on the net of the prism by gaining at least a mark for one of the rectangles correct. Since all dimensions of the triangle were given, it was only a few who did not have the correct lengths. Some 3D attempts were seen, and many did not attempt the question.

Question 14

Finding the angle x required the application of the angle properties of a straight line and angles in a triangle. There were two routes to the solution and most first found the remaining unknown angle at point F. Then either the two angles at D or the two angles at E would lead to the final step to find angle x. Many candidates were reluctant to write on the diagram. Without identifying values of angles on the diagram, many did not make it clear in their working which angle they were finding. Also, errors were very common in calculations such as 180 – (50 + 45). Many candidates did not realise that only two basic properties of angles were needed, leading to assumptions that there were parallel lines involved as well as congruent triangles.

Question 15

Having one share given and asked to find the total amount rather than being given the total and asked to find one share has become quite common in questions. This question was not done well as many did not realise they had to find the value of 1 part having been given 2 parts. Adding the ratio shares and dividing 120 by that total was a very common error. Some did find the one part and multiplied it by 15 while others found how much each received and added those together. However, again arithmetic errors were common, meaning of those following a correct method, some still failed to reach the correct answer.

Question 16

There was quite a good response to the ordering question which was rather unfamiliar by having all the data in standard form. A natural starting point of changing all the numbers to ordinary form was not very common which resulted in many errors being made. Common errors were having the first two values the wrong way round or starting with the numbers greater than 1. Some were not familiar with standard form and simply put the order from just the decimal part of the item.

Question 17

Although the formula for the area of a trapezium is not listed in the formula page, it should have been better known than was evident in the response to this question. Even if not remembered, the shape could have been split and the areas added. An answer of 28 from simply adding the three values was seen frequently. Other errors were from regarding it as a single triangle or a rectangle (14×6). Even those knowing the formula often had errors in applying it such as 14 + 6 instead of 14 + 8.

Question 18

Changing to an improper fraction gave a promising start for the vast majority of candidates but some tried to deal with the whole numbers and the fractions as separate parts. While most knew they had to invert the second fraction and multiply, a significant number inverted the first one or both of them. Those who then cancelled the 17's usually ended up with the correct answer but multiplying numerators and denominators resulted in larger numbers that many struggled to deal with correctly. The alternative method of a common denominator, most often 24, again seemed to produce errors or an unsimplified answer.

Question 19

(a) Many candidates did have a correct shape flag for reflection which was parallel to the object. Although candidates were not asked to draw the line on the grid, those that did usually drew the correct image position. Reflecting in $y = -1$ for 1 mark was rare since that line was mostly not correct.

(b) There was a better response to the rotation of 180° and many did find the correct place on the grid. Quite a significant number of candidates rotated through 90°.

(c) Having experienced reflection and rotation in the first two parts, many did recognise this as a translation as long as they knew the name. Many did not know it as evidenced by the large number of no responses. Some described the transformation in words while others used a column vector. Some had that correct but both the number or signs were often incorrect.

Question 20

(a) The Venn diagram was usually populated correctly but a significant number did not fill in the part of the universal set outside the circles. Some missed one or two of the elements from the universal set in their diagram. The other error seen often was to repeat certain elements according to how many times they appeared in the lists. Usually, it was a repetition of 1 and 3 but at times all numbers that appeared more than once in all three lists were repeated.

(b) Nearly all recognised that intersection was the part in the middle and either the correct answer or a follow through of an incorrect **part (a)** was listed correctly.

(c) In contrast, many did not know the notation n(B') so did not attempt an answer. Those who tried often listed the numbers 6 and 10 thinking that it meant just those only in set B.

Question 21

Many showed a clear understanding of the rules of indices and found the correct index for the *x* term but an index of 4 was seen quite often from dividing instead of subtracting. Unfortunately, a significant number thought they had to do 18 – 9 instead of 18 ÷ 9 to deal with the coefficients.

Question 22

Nearly one-quarter of the candidates did not appear to know what a hexagon was so did not attempt the question. Others attempted a formula with the number of sides not equal to 6. Some did reach the total for the angles of a hexagon but few of them divided by 6 to find the answer for the interior angle.

Question 23

The straightforward start to the question was done well provided candidates knew that the equations needed two terms added and an equals sign followed by an amount of money. The vast majority did gain the first 2 marks. The elimination method was sensibly most often applied to solving the equations, but again arithmetic errors resulted in very unlikely decimal solutions. Only small multipliers were needed to eliminate either variable, but often extremely large calculations were attempted. The substitution method was not suitable and although this resulted in one or two method marks the algebraic manipulation was beyond all but the very able candidates. A final mark was often unable to be awarded since a fractional answer, $2\frac{1}{2}$ or $\frac{5}{2}$ was not acceptable for an amount of money.

Question 24

Many did not attempt this question. However, the diagram suggests that the angle at *B* was 90° even if the circle theorem was not known, which meant there was a reasonably good response. Some ignored that angle and just subtracted 36 from 180 while 72 from 2×36 was also seen.

Question 25

(a) While many were unable to begin this question, those who did understand performed well, at least to the extent of gaining 1 mark for three terms out of the four correct. Addition and multiplication of directed numbers resulted in many errors.

(b) The factorising question was slightly more successful than the expansion in **part (a)**. Again, partial success from taking out 5 or *x* was quite common but most who did take 5*x* outside the bracket got a fully correct answer. Some left + 10 inside the bracket which was probably carelessness, and a few thought they had more to do once the correct answer was found, so spoilt their answer.

Question 26

This was quite a difficult example of a common straightforward topic. Requiring a third decimal place for the bounds seemed to be too much for most candidates. Rarely were answers given that did have three figures after the decimal point, but when they were seen it was usually 2 marks.

Question 27

(a) Most candidates that attempted this question managed to find the *n*th term correctly, but others reversed the 6 and the 4 in their expression. A few gave the unsimplified form and often gained 1 or 2 marks for their response. Some did not understand that it required a general term, instead choosing to extend the sequence to the next term.

(b) This was a friendly end to the paper, but too many candidates had given up at this stage. Those who realised that they had to substitute 1, 2 and 3 into the expression often made some progress and there were a reasonable number of correct answers. Unfortunately, $1^2 = 2$ spoilt a number of answers while others were sure the terms increased by the same amount each time.

MATHEMATICS SYLLABUS A (MAURITIUS)

Paper 4021/02
Paper 02

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 and made an attempt at most questions. The standard of presentation and amount of working shown was generally good. Centres should encourage candidates to show formulae used, substitutions made and calculations performed. Attention should be paid to the degree of accuracy required in particular questions. Candidates should also be reminded to show all steps in their working for a multi-stage question and should be encouraged to read questions again to ensure the answers they give are in the required format and answer the question set. Candidates should use their calculator efficiently, though it is still advisable to show the calculation performed as transcription and miscopying errors can occur.

Comments on specific questions

Question 1

(a) This part was generally very well answered with the majority able to state the correct mathematical name of radius, although other names were seen.

(b) This part was generally well answered with the majority able to state the correct mathematical name of chord although, other names were seen, including diameter, vertical and straight.

Question 2

Many candidates were awarded 2 marks for listing all of the factors. Just as many were awarded 1 mark for listing at least four factors, with the most common omissions being 1 and 32. Candidates should be aware that listing factor pairs as multiplications is not sufficient for a list of factors. Some candidates confused factors with products of prime factors and gave their answer as multiplications of 2.

Question 3

This part was generally well answered with a good number able to give the three correct symbols. The first statement proved the most difficult with the common error being $\frac{2}{3} = 0.667$.

Question 4

(a) The vast majority of candidates were able to give the correct coordinate. There was the occasional reversing of coordinates leading to the incorrect answer (3, –2). A rare error was to include x and y within the coordinate, for example (x = –2, y = 3) or (-2x, 3y).

(b) Few were successful at drawing $y = x$ correctly and many made no attempt to draw this line at all. There were a significant number of vertical and horizontal lines that were labelled $y = x$. Often the line was drawn over either of the axes. Some drawing the correct graph gave a line that was too short or became too inaccurate.

(c) There were many attempts to draw a line, usually starting from P even if $y = x$ had not been drawn, occasionally this resulted in the correct line. Candidates who drew $y = x$ correctly in **(b)** also often drew the perpendicular line correctly. Some demonstrated correct understanding by drawing two lines starting at P that were perpendicular. Others drew a line passing through P that crossed a vertical or horizontal line that had been labelled $y = x$. Many incorrect lines started from P and passed through (0, 0).

Question 5

(a) This part was generally well answered with equal numbers of candidates giving the answer as a fraction or a decimal. Common errors included $5 - 8$, 5×8 and $\frac{8}{5}$.

(b) This part was generally well answered, although common errors included $8 - 5$ and $\frac{5}{8}$.

Question 6

(a) The majority of candidates gave a correct value, often 81. The most common incorrect values were the cube numbers, 8 and 27.

(b) The vast majority gave the correct answer here, with the most common incorrect answers being 39 or 0.

(c) Candidates had the least success with this part of the question. 51 was a very common incorrect value, along with all the other odd numbers.

Question 7

This part was generally very well answered although a common error was to calculate $\sqrt{362}$.

Question 8

Around half of candidates gained both marks in this question. It was common to award 1 mark for one of the correct values. Common errors involved multiplying and/or dividing by varying incorrect powers of 10. Candidates sometimes indicated that they were multiplying 3.25 by 1000 but just added a 0 on to give 3.250 as the answer.

Question 9

Both parts of this question proved to be difficult and demanding for many candidates, although a small but significant number of fully correct answers were seen, often accompanied by sketches or diagrams which helped to identify the correct mathematical name for the two shapes.

Question 10

This question proved to be difficult and demanding for many candidates and proved to be a good discriminator. A numerical scale on both axes left many candidates uncertain about which values to use to calculate both the total score of all spins and the total number of spins. It was common to see the sum of 7, 5, 8, 9, and 6 used to represent the total score. The total frequency was often given as 5 or, in some cases, the sum of 1, 2, 3, 4, and 5. A small minority were awarded 1 mark for multiplying the score by the frequency to find the sum of the total scores but this was then usually divided by 5 or 15. Occasionally, some with a correct method made arithmetic errors when calculating one of the totals or provided an answer rounded to fewer than three significant figures. Candidates who did not understand the term 'mean' often gave an answer of 3 from the middle value of the numbers on the spinner or 7 from the middle value of the frequencies when listed in order.

Question 11

This question was answered very well with a large majority working out the correct answer. Clear calculations were often shown. Those who did not find the correct answer were often awarded a method mark for showing the correct substitution. The most common error was to calculate 3×62 as 182. Less common was $2 \times -3 = -1$ from adding the numbers.

Question 12

(a) Finding the angles for the pie chart did not appear to be attempted as well as in previous sessions, although a good number of fully correct tables were seen. There was very little working shown but there were a few very common misconceptions. Some calculated percentages rather than degrees. It was common to see values of 74, 56 and 50 from 90 minus each frequency and less often, some added 90 to each frequency. Values of 22.5, 10.59 and 9 came from 360 divided by each frequency.

(b) Those who found the correct angles generally went on to draw a correct and accurate pie chart. There were some inaccuracies drawing the sectors and some who were clearly using the wrong scale. Some candidates gained a mark by following through one of their sector angles and drawing it accurately. There were also a significant number of candidates who did not attempt to draw the pie chart, whether they had values in the table or not.

Question 13

In a two-step question like this, candidates need to show the evaluation and then show the required rounding. Few candidates gave the correct answer rounded to three significant figures. Most were able to calculate $8^5 = 32\,768$ but often rounded this to 328. Other incorrect answers that were seen regularly included 327, 33 000, 32 700, 330 and 327.68.

Question 14

(a) Time differences continue to be a difficult concept for candidates. The vast majority of candidates were attempting the most efficient strategy of calculating the number of hours worked each day and then multiplying by 5, rather than taking the mornings and afternoons separately. 1 mark was often awarded to those with an answer of 45, taking the total number of hours in the day without the lunch hour. The half hours caused problems with much confusion between 0.5 and 0.3.

(b) Those who answered **part (a)** correctly most often went on to reach the correct answer and many follow through marks were also awarded from their **part (a)**. A significant proportion did not relate **part (a)** and **(b)** and tried to recalculate, often getting to a different number of hours to that found in **part (a)**. A common incorrect calculation was to simply multiply 15.20 by 5 days, giving an answer of 76.

(c) Many found this to be a difficult concept. It was common to see the number of hours or the total pay for the week multiplied by 1.5 rather than the hourly rate of pay. Some candidates simply gave an answer of $\frac{3}{2}$ or 1.5 as a conversion of $\frac{11}{2}$.

(d) The responses were typically split between the correct answer and those who multiplied by the conversion rate rather than dividing.

Question 15

This part was answered very well with a majority plotting the correct location of ship B. Others usually plotted B either with a correct bearing or with a correct distance and were awarded a partial mark. The best solutions had a clear, ruled, solid line drawn from A and then B clearly indicated by having either B written next to a clear dot on the line, or B marked next to the end of their line.

Question 16

This question on finding a percentage of a given quantity was generally very well answered.

Question 17

This question was not generally answered well, with only a minority of candidates able to indicate $x \geqslant 3$ on the number line using correct arrow notation. Many different types of responses were seen with incorrect circles used and, in some cases, no line drawn.

Question 18

(a) Many candidates correctly identified the type of correlation. However, a wide range of incorrect answers were seen, including responses such as inclined, straight line, ascending, and negative.

(b) There were many good attempts at the line of best fit which were awarded the mark. Others did not look at the data carefully enough to provide an acceptable line. Many drew a line from the origin to the top right corner of the grid or from the lowest data point to the highest on the *y*-axis. Others did not draw a straight line, often joining each point together.

(c) This was a better attempted part of the question and candidates usually gave a value in the acceptable range or followed through from their line accurately. Some got the two papers the wrong way round and so were reading from the incorrect axis. 40 and 48 were common responses; the data values plotted the closest to 35.

Question 19

This two-stage question proved both difficult and demanding for many candidates and proved to be a good discriminator. A minority of candidates gave the correct answer. Many calculated the volume of the cylinder, showing clear working, but either did no further work or divided by 3 rather than finding the cube root. Common errors also included dividing by 6 or 12 or using the surface area of the cube as $6x^2 = 942.5$. A significant number of candidates could not find the correct volume; either using an incorrect formula usually $2\pi rh$, $\frac{\pi r^2}{3}$ or simply 5×12.

Question 20

(a) Candidates who were awarded the mark made a statement correctly identifying the mean and the important comparison that it was higher. Statements which did not score the mark included those not identifying the mean such as, ‘it has a higher average’ or ‘it has higher audience numbers’, or a comparison was not made, such as ‘mean is high’ or ‘mean is 105’. Although some gave a correct statement involving the mean, they also made reference to the range so the mark could not be awarded. A significant number incorrectly chose ‘Movie Scene’ rather than ‘Flix’.

(b) Non scoring statements referred to ‘greater variation’ but did not mention the range and some correctly stated range but did not make a comparison. Although some gave a correct statement involving the range, they also made reference to the mean so the mark could not be awarded. A significant number incorrectly chose ‘Flix ‘rather than ‘Movie Scene’.

There was a significant rate of no response in both parts of the question.

Question 21

Many candidates were able to use a calculator correctly to reach 233.33... but few candidates converted this to standard form with 3 significant figures. The answers 2.3×10^2, 2.3×10^{-2} and 2.3×10^{-8} were frequently seen. Other common errors were adding/subtracting/multiplying the numbers 5.6 and 2.4 from the question.

Question 22

Candidates found this question very demanding, and it proved to be a good discriminator. Many candidates did not appreciate the connections between the different parts of the question. Many candidates did not attempt either all or parts of the question, notably **parts (b)** and **(c)**.

(a) This part of the question was the best attempted part. Candidates often confused the area and circumference of a circle and so used the incorrect formula. Centres should remind candidates to use the formula sheet provided at the start of the paper. Those using the correct formula often used 10 as the radius rather than 5 and sometimes the length of the rectangle, 16, was used.

(b) The common incorrect answer was 160 from calculating 10×16, having seen the area of the garden as a complete rectangle 10 by 16 or not knowing how to proceed from here. Some candidates did realise the need for further working but sometimes subtracted the whole circle rather than half which was covering the rectangle.

(c) Only a small minority gained any marks in this part of the question with very few correct answers or following through with a correct method from their values in the previous parts. Many candidates were finding percentages but very few had the value for grass as a numerator. It was common to see the area of the pond as the numerator, either divided by the value of **part (b)** or by 160, which may or may not have been their answer in **(b)**. Weaker candidates often simply divided their area for grass, which was often 160, by 100.

Question 23

This two-stage question was found to be both difficult and demanding for many candidates and proved to be a good discriminator. A number of candidates did not appreciate that Pythagoras was required to find the missing length. Common errors included using $15^2 + 14^2$ leading to a length of 20.5, simply adding the 3 given lengths and using a base length of 14 cm when splitting into a triangle and rectangle.

Question 24

Candidates who wrote down the relationship $\frac{42}{AB} = \frac{28}{12}$ or equivalent first, usually went on to rearrange correctly and score 2 marks for the answer of 18. Others who did not state this relationship, started by calculating 28 ÷ 12 followed by 42 divided by the result. There was a lot of premature rounding with this, stating 28 ÷ 12 = 2.3 and so 42 ÷ 2.3 = 18.26. This earned a method mark but could not gain the accuracy mark. A less common correct start was 42 ÷ 28 = 1.5, however few were successful with the next step. Most incorrect methods used subtraction rather than division.

Question 25

(a) Few candidates were able to state the correct equation of the line. A common error was to find the gradient as $\frac{1}{2}$ from counting the squares on the grid and ignoring the different scales on the axes. Some candidates were able to gain a mark for an equation with the correct intercept, $y = mx + 2$ while others gave the answer $y = 2$, which did not score. A small number used the points (4, 3) and (8, 4) but calculated the gradient upside down, giving the answer 4. Many varied incorrect methods and answers were also seen.

(b) Candidates found this part even more difficult and only a small number of correct answers were seen. Many candidates incorrectly substituted 1 and 5; usually $y = -3 \times 1 + 5$ or $5 = -3 \times 1 + 5$. A small number did appreciate that the parallel gradient was –3. A significant number of candidates were unable to attempt this part.

Question 26

High ability candidates who recognised that a trigonometric ratio was required often went on to obtain the correct answer. Premature rounding was an issue again in this question with many writing the interim value of tan 37 as 0.75, leading to an answer of 9. Some wrote down a correct ratio but were then unable to rearrange this correctly and others used an incorrect ratio, usually cosine. A significant number of candidates did not appreciate that the method required a trigonometric ratio and used the values on the triangle in a multitude of incorrect ways. A significant number were unable to attempt the question.

Question 27

(a) Nearly all candidates completed the table correctly, though occasionally a sign was missed off one or both of the negative values.

(b) The large majority of candidates scored either 4 marks or 3 marks in this part. Many good curves were drawn. Those who scored 3 marks usually had either plotted the point (4, 3) or (–4, –3) inaccurately or did not join the plotted points with a curve, or had joined (–1, –12) to (1, 12).

(c) Most candidates gave the correct answer 1.2 or an answer in the accepted range. Common errors included answers of 120 and $\frac{10}{12}$ usually from an incorrect rearrangement of the given equation rather than using the graph.

Question 28

Successful candidates gained full marks for using the correct formulae for compound interest and simple interest, leading to the correct values for both investments. It was very common for mistakes to be made in the simple interest calculation due to candidates only stating interest of $1080, rather than adding the principal and giving the total value of Bob's investment after 3 years. Some giving the correct value of $4144.54 for Ali's investment then subtracted the principal and compared just the interest for both accounts. It was common for candidates to use simple interest for both Ali and Bob with some just calculating the interest for 1 year, so comparing $354 with $360. Others used compound interest for both accounts and occasionally the type of interest was confused, with simple interest used with $2950 and compound interest used with $3000. Many candidates did not attempt this final question which may have indicated issues with time management or a lack of the skills required to attempt the problem.