

## Mathematics SG V1

### QUESTION 1

- 1.1.1 Well answered. Candidates still consider  $(x-3)=6 \text{ of } 0$  and  $(x+2)=6 \text{ of } 0$
- 1.1.2 Well answered. However, candidates still had problems using a calculator. The construction of the formula for the solution to a quadratic equation must be well considered. It was on the formula sheet.
- 1.1.3 Reasonably well answered. Most candidates neglected to validate their respective solutions. Squaring of a binomial presented some difficulties for candidates.
- 1.2 In using the linear equation, many candidates failed to make one of the variables the subject of the formula. Where the coefficient of the variable is 1, make the easier choice.

### QUESTION 2

- 2.1 Candidates had no problem answering this question.
- 2.2 Candidates did not know how to answer this question as the way it was set confused them.
- 2.3 The majority of candidates answered this question satisfactorily.
- 2.4 The majority of candidates answered this question satisfactorily.

### QUESTION 3

- 3.1.1 In general, this was well answered, but the candidates did not write the answers in co-ordinate form.
- 3.1.2 Candidates did not know that lengths are positive. Very few candidates could calculate the length of BC.
- 3.1.3 Candidates struggled to determine the gradient of a straight line.
- 3.2.1 Answered very badly. The question was not clearly set.
- 3.2.2 Candidates were not sure if the semicircle was positive or negative. Candidates could not determine the radius of the semicircle from the equation. The hyperbola was drawn mostly in one quadrant.

### QUESTION 4

Candidates once again used the calculator, even though they were instructed not to do so.

- 4.1.1 There were reasonably satisfactory responses to this question.
- 4.1.2 The middle term was left out at the squaring of the binomial. The sign of the third term was mostly given as (-3).
- 4.1.3 In general, this question was well answered.
- 4.2.1 Answered very badly. Candidates could not take out a common factor.
- 4.2.2 Candidates used the log law on the left-hand side, but did not put the log in front of the 2 on the right-hand side. They also did not know that the answer must be greater than 5.

4.2.3 In general, this question was well answered.

## QUESTION 5

5.1.1 Many candidates used the correct formula, but assigned  $n = 62$  instead of  $T_n = 62$ .

Congratulations to those candidates who offered  $n = \frac{l-a}{d} + 1$  as a method to determine the number. Reading with understanding is crucial.

5.1.2 Question was reasonably well answered.

5.2 Question was poorly answered. In solving the geometric simultaneous equations, many candidates used subtraction instead of division to eliminate  $a$ .

5.3 Well answered. The effective use of a calculator was evident.

5.4 Poorly answered. In order to use the appropriate formulae, many candidates attempted to find out whether the series was arithmetic or geometric. As a result, rudimentary expansion was neglected. Many candidates could not understand the meaning of  $\sum$  with starting and end values.

5.5 Answered very well. However, most candidates neglected to calculate the final decrease in the population. Candidates also did not consider the context of the question and therefore did not round off the answer.

## QUESTION 6

6.1 Many notation errors

6.2 Many notation errors

6.2.2 Answered very badly. Candidates could not divide with a variable and started to differentiate immediately. Many notation errors.

6.3.1 Answered very badly. Candidates did not understand the question.

6.3.2 Although candidates did not understand 6.3.1, they could determine the equation of the straight line by substituting any value for the gradient from 6.3.1.

## QUESTION 7

7.1.1 This question was well answered. Many candidates determined the roots first and then the turning points, although roots were not asked. Some candidates stopped after determining the roots.

7.1.2 This question was well answered.

7.1.3 Answered very badly. Candidates did not know how to work with inequalities and also did not know what was meant by "inequalities". They struggled to make deductions from the graph.

7.2.1 and 7.2.2

Candidates answered these two questions as a whole and did so relatively well. The change from metre to kilometre was done poorly. Candidates did not state that the derivative was equal to zero.

7.2.3 Well answered. Some candidates substituted 10 into the derivative.