

QUESTION 1

- 1.1.1 The standard form includes $= 0$.
- 1.1.2 The standard form as in 1.1.1. Rounding off to two decimal places is still a problem.
- 1.1.3 When dividing or multiplying an inequality by a negative number, candidates must be aware that the inequality sign changes direction. This question was poorly done, indicating a lack of understanding of inequalities.
- 1.2 The greatest problem with this question was that candidates struggled to solve for y in terms of x from the linear equation. When squaring the binomial, the middle term was often omitted.
- 1.3 Factorising should be done before substituting values.
- 1.4 This question proved very difficult for most of the candidates.

QUESTION 2

- 2.1.1 And 2.2.1 Answered well.
- 2.1.2 Candidates need to be exposed to questions which include a combination of AP and GP.
- 2.2.2 Answered fairly well. If candidates use formulae, teachers should make sure that candidates understand the concept of the quadratic sequences.
- 2.2.3 Answered fairly well.

QUESTION 3

- 3.1 Teachers should expose candidates to series which contain variables in the terms. Question was poorly answered.
- 3.2 The condition for convergence was not well understood.
- 3.3 The sum to infinity was also not well understood.

QUESTION 4

- 4.1 Candidates did not realise that the asymptotes represent the values of p and q . Candidates must be taught to interpret graphs.
- 4.2 Answered very poorly.

QUESTION 5

- 5.1 & 5.2 The parabola graph was well handled. The candidates should, however, recognize the significance of the turning point form. Exponential and log graphs were not done well.
- 5.3 The effect that shifting a graph has on the equation was not well understood.

- 5.4 This question was very badly done. Candidates did not understand functional notation.

QUESTION 6

- 6.1 Candidates must know how to express the asymptotes in equation form. They must realize that the equation of a vertical line is $x =$, and not $y =$.
- 6.2 This question was very badly done.
- 6.3 Candidates understood the concept of amplitude, but not that of the period.

QUESTION 7

- 7.1 This question was very well done.
- 7.2 In general, the candidates struggled with the new financial mathematics. They were unable to use the correct formulae. When to use yearly time periods or monthly time periods was not well understood.

QUESTION 8

- 8.1 Candidates should be careful to use correct notation. Substitution of $f(x + h)$ needs attention.
- 8.2 Dealing with fractions prior to differentiation was a problem. Writing $\frac{dy}{dx}$ before differentiation takes place remains a problem.

QUESTION 9

- 9.1 Candidates must be made aware of the hint that was implied by giving $g(x)$ in both standard form AND factor form.
- 9.2 In finding the co-ordinates of a turning point, it must be stated that $g'(x) = 0$, not just implied.
- 9.3 Finding the gradient of a tangent to a curve was not well done.
- 9.4 This question was not understood by most candidates.
- 9.5 To find the x value of a point of inflection, candidates must state the $g''(x) = 0$, not just imply it.

QUESTION 10

- 10.1 Candidates should have started from the formula for the volume of a cylinder.
- 10.2 The formula for the surface area of a cylinder was not well known.
- 10.3 Candidates did not deal with differentiating fractions very well. When determining minimums, it must be stated that the derivative is equal to zero.

QUESTION 11

- 11.1 Candidates must be reminded that constraints invariably involve \geq or \leq signs, and not just $>$ or $<$.
- 11.2 11.3 and 11.4 these questions were generally well done.
- 11.5 When using a search line, candidates must be taught to show the gradient of the objective function and indicate this gradient **accurately** on the graph paper.
- 11.6 The implication of a search line lying on a boundary of the feasible region needs attention. This question was answered very badly.