## QUESTION 1

The questions were graded from easy to difficult. Candidates struggled with the difference between 'and' and 'or'.

It was alarming to see how many candidates could not distinguish between terms, especially in 1.1.2 and 1.3.

The terms 'integral values' and 'irrational roots' were problematic for some candidates.

In 1.2.1 the simplest surd form was not given and many gave this as their solution to
1.2.2.

1.4 was poorly answered.

## QUESTION 2

2.1 was well answered.

2.2 caused problems as many pupils knew that they had to substitute -2, but then they
equated it to 0.

## QUESTION 3

3.1.1   Many variations. Many found the interpretation of the sketch difficult. Good question.

3.1.2  was well answered.

3.1.3   Some had difficulty multiplying a fraction by 2.

3.2.1  Many candidates found it difficult to find gradient of tangent.

3.2.2  Many did not link 3.2.1 and 3.2.2. Hyperbola should be revised in Grade 12.

3.2.3 h(x) often only drawn in quadrant 1 and not in quadrant 3, perhaps because g(x) in quadrant 1.

3.3.1 An easy question, which was well answered.

3.3.2 & 3.3.3 were well done.

3.3.4 Candidates often left out x > 0, "or".

3.3.5 Many gave log function. Knowledge of 'inverse function' poor.


## QUESTION 4

4.1 Proof was poorly answered.

4.2 $9 = 3^3$

4.2.2 '+1' in the square root was problematic. Square root was dropped or the term
was squared.

4.3.1 Common mistakes made: $6^{2x}$ became $2.3^{2x}$, $\sqrt[3]{4}$ became $4^{3/2}$

4.3.2 Candidates could not deal with the negative index. They scored either 5 or 0 for
the question.

4.4 The question was a problem. "Show your test" should have been part of the instruction. -20x became -2x and $(x^2 + 2)$ became $(x^2 - 2)$.

## QUESTION 5

5.1.1 Candidates expected something difficult, so made it more difficult that it was.
Perhaps a problem of interpretation. Many rounded up to 29. They tried to use formulas instead of just thinking of a simple solution.

5.1.2 Good question, but candidates found it difficult.

5.2.1 Some said r is a fraction, or r < 1. Should have gone back to the definition, but
they did not know the definition.

5.2.2 Many could set up the equations, but could not put them together correctly. Simultaneous equations not correct. Did not give the negative solution.

5.3 Converting from metres to centimetres a problem. Used $S_n$ instead of $T_n$. This is the

question that gave the most problems in this paper. There were too many
different
mathematical concepts in the same problem.

5.4.1 Candidates expected it to be more difficult than it was.

5.4.2 Poorly answered. Relevant question?

## QUESTION 6

6.1.1 was well answered, but many could not cube (x + h).

The indices of 6.2 created unnecessary problems. Many tried to take the
derivative
before dividing in 6.2.1, and, in 6.2.2, tried to divide before factorizing.

The fraction and negative exponent of the derivative in 6.3 tested many
candidates.

The units in 6.4.1 were omitted. Or was this very creative?

6.4.2 showed poor insight.

## QUESTION 7

7.1.1  Well done.

7.1.2  Poorly done. Notation problems, and the f'(x) < 0 was not used in the
answer.

7.2.1 They could not find h in terms of x.

7.2.2  Worked from the given.

7.2.3 The negative index was problematic.

## QUESTION 8

The line y = x created many problems in trying to find the feasible region. Some
used
x ≤ 15 as a constraint.

8.3.2   The candidates gave only one possible combination.