MATHEMATICS HG P1 **NOVEMBER 2006**

INTRODUCTION
In general the candidates fared fairly well, but there were certain problem areas.

COMMENDS QUESTION BY QUESTION

1.1.1 Interpretation of the discriminant is a problem
$\Delta = \sqrt{140}$ implies that the roots are irrational because 140 is not a perfect square.

1.2.2 The value of the RHS must firstly be determined.
$|4-8|$ = +4

1.2.3 In an inequality you may n ot multiply with an unknown denominator. All terms to one side and the fraction must be kept.

2.1.1 Labeling of graphs is essential! Especially if graphs coincide.

2.1.2 Many candidates did not realise that the coinciding section of the graphs was the solution.
$x \geq 2$

2.1.3 Symmetry is a problem!

2.2.3 Use the graph to solve this question and not Delta!
Use the line y = k (line parallel to x-axis) to ease the solving of this question.
-4 < k < 5

2.2.4 Find the positive integral values of t which will make the discriminant a perfect square.
t = 1, 4 or 5

2.3 Reminder: graphs taught in grade 10 is examinable.

4.1.2 The shape of f implies that $a > 1$.
a must also be an element of the real numbers and not only Integral numbers.
The greater the value of a, the steeper the graph rises.
Solution thus is: $1 < a < 5$

4.2 When asked to prove, start with one side and work towards the other. Do NOT use it as an equation!

5.1 All steps in formal proofs must be shown.

5.3.2 Converging series needs $|r| < 1$ and the testing needs to be shown.

5.5 Term 4 is determined by $S_4 - S_3$.

6.1 Learners do not understand the concept of average gradient and the gradient at a point.

6.2 $\frac{d}{dx}[2g(x)+h(x)] = 2g'(x) + h'(x)$!!!!!!!

7.2 Unit notation at the answer should be Rands per shirt.

7.3 $N'(x) = 0$ before you can solve for x. The product may not be changed by dividing by 10 even thou the derivitive divide by 10 gives the same answer.

8.3 Although (4 ; 4) is the point where the solution can be found, the solution is:
4 landline phones and 4 cellphones.
Thus the solution to 8.4 is: 2 landline phones and 9 cellphones.

GENERAL

- The instructions states that answers must be numbered EXACTLY as the questions are numbered AND clearly show ALL calculations! Many pupils lost unnecessary marks because they did not follow these instructions.
- We recommend the use of interval notation, $(3;7]$, instead of $3 < x \leq 7$. as the learners are confused between 'or' and 'and'.
- Teachers must prepare candidates for FET orientated questions.