

**Question 1**

1.1.1 Answered well. Some learners still could not write equation in standard form. Not factorising correctly.

1.1.2 Often formula was copied incorrectly from formula sheet. Learners should encouraged to use the formula sheet. Sloppy work lead to incorrect calculator usage.

Eg  $4 \pm \frac{\sqrt{8}}{2}$  instead of  $\frac{4 \pm \sqrt{8}}{2}$

Still rounding off before final answer.

1.1.3 Many learners still square both sides of the equation incorrectly. Very few learners checked their answers for the solutions.

1.2 Many learners started the question by changing the subject of the linear equation incorrectly which lead to a difficult expansion of the quadratic equation.

**Question 2**

This question was answer good.

2.1.2 The product of the 2 roots is a question not frequently asked and therefore the learners did not attempted to answer it.

2.2.1 Getting to the answer was easy for the learners, but handling the inequality sign created problems.

2.2.2 Because of the wrong inequality sign in 2.2.1, learners could not interpret this question. This question is also a very uncommon question and thus answered by few learners.

2.3 Poorly answered. The remainder and factor theorem were poorly applied.

**Question 3**

Most learners had no idea how to answer 3.1.1. They just substituted randomly. The turning point equation created problems because most of the learners did not recognised it.

In 3.1.2 most of the learners guessed or estimated the coordinates of R and S.

In 3.1.4 many of the learners did not know about the formula for the circle.

3.2 Most learners did know that  $f(x)$  was a hyperbola, but could not recognise that  $g(x)$  is a straight line.

#### **Question 4**

Learners do not know the exponential and log-laws, and the learners that know the laws found it difficult to apply the laws in this question.

#### **Question 5**

Learners found it difficult to distinguish which formula to use at the different questions. The learners who did start by using the right formula did well in the question.

The question where the learners had to apply the  $\sum$  notation was answered very poorly. Finding the values for  $a$ ,  $d$  and  $n$  created problems.

The question on the compound interest: the learners were not sure which formula to use because both were given. Learners do not know how to round off correct to the nearest unit.

In 5.3 the learners had difficulty in finding the value of  $r$ . When  $r$  was wrongly worked out as  $\frac{1}{3}$ , the learners found it difficult to work with the fraction.

## Question 6

6.1 Notation: learners do not use the prime sign, they only write  $f(x)$

Substitution: - the negative in front of the  $x^2$  was left out, so the  $f(x + h)$  was

calculated wrong.  
- the substitution of  $f(x)$ , many problems with the negative  
 $-(-x^2)$  was simplified and stayed a negative term

The  $\lim_{h \rightarrow 0}$  notation was used at the wrong place.

6.2.1 Learners could not apply fraction laws.

6.2.2 Simplifying of the expression by first dividing the  $3x$  into both the terms in the numerator before applying the differentiation laws created problems in almost all the answer papers.

6.3 Learners could not distinguished between the calculations of  $x$ -intercepts and the turning points.

Equating to 0 after determining the derivative when solving the  $x$  values of the turning points was left out.

Translating the information to the graph created problems. The coordinates must be indicated on the axes.

## Question 7

This question was very badly answered.

In 7.1 and 7.3 learners did not know how to interpret the questions correctly and hence did not know what to substitute into which formula.

7.2 Equating to 0 after determining the derivative when solving the  $t$  values of the minimum was left out. Making incorrect choice when giving the final answer rounded off to 7 days.