

Question 1

- 1.2 Clearly some candidates did not know what the 5 number summary was, and yet they could draw the box-and-whisker diagram. Many included the mean in the 5 number summary.
- 1.3 The box-and-whisker plot must be drawn accurately.
- 1.4 More guidance is needed here on what is expected. Candidates did not understand what the median actually was and they had no idea how to comment on the "spread of rainfall". Many merely discussed the months.
- 1.5 Is the calculator method taught in all schools? There were many mistakes with doing it the long way.

Question 2

The mathematics was well done, but the interpretation was poorly answered. The language used in the questions made it difficult for those for whom it was not their first language. Often candidates mistook a drop in times as something negative. Many of these questions were not well answered as there were too many possibilities.

- 2.1 This was often guess work, as the curve drawn bore no relation to the answer in this question.
- 2.2 Many candidates just joined the points.
- 2.3 Many candidates did not understand what a *trend* was.
- 2.6 This often had no relation to the line drawn.

Question 3

The fact that this question was asked in reverse was good, but it caught a number of candidates out. Teachers need to emphasise that this question could be asked both ways.

- 3.1 Many candidates did not understand the term *cumulative frequencies*.
- 3.3 Many candidates did not write intervals, but used only the end-points, e.g. 10; 20; 30.

Question 4

While many candidates attempted this question successfully, a significant number which showed very little skill in tackling what may be called routine questions. It was somewhat surprising that candidates selected incorrect formulae and showed a very poor ability to work with a variable in place of a number.

- 4.1 Candidates were unable to use the angle of inclination to determine the gradient.
- 4.2 Candidates could not see the link between t and the gradient.

- 4.3 The major problem was in constructing an equation using the distance formula to calculate p . Those who recognised the use of the distance formula, squared the equation incorrectly. Many assumed that $\angle ABC$ was a right angle.
- 4.5 Candidates used points A and B to find the equation of the line parallel to AB, instead of using point C.

Question 5

- 5.1 No problems.
- 5.2 Candidates need to be taught that they cannot substitute a co-ordinate into both sides of an equation.
- 5.3 Quite well done, but some did not give a motivation as to why the line was a tangent, even though the question was worth 5 marks. Many candidates focused on "centre M" so the line was stated as being parallel or perpendicular to point M.
- 5.4 Well done.
- 5.5 A remarkable number of candidates thought that isosceles implied the 90° . Perhaps they were seeing "angle in semi-circle" without saying it.
- 5.6 It is important that candidates should be aware of using previous answers, even if they could not prove them. Too many of them tended to start from scratch using angles of inclination because they were used to finding angles in that way in co-ordinate geometry. The 1 mark allocated should have been a warning.
- 5.7 Candidates made a common mistake of assuming that Z was the mid-point of AM or N the mid-point of AB. The use of trigonometry to find the radius, plus the fact that there was a very long way to find the co-ordinates of Z (which they are used to doing in finding a radius) made this definitely a higher order question. Candidates should therefore be encouraged not to assume that the "usual" way of working will always be the best. It seems as if quite a bit of basic geometry and trigonometry may well continue to appear in the Co-ordinate Geometry section. This needs to be revised in the senior grades. This question was difficult as the sketch was not given.

Question 6

It was very disconcerting to note that candidates did not know or understand the rules for transformation. One got the impression that at many centres candidates had not been exposed sufficiently to this section where many marks are easily obtainable by its very nature.

- 6.1 Candidates simply multiplied the area by the scale factor instead of multiplying the area by the square of the scale factor to get the new area. This was a major problem. Very few candidates knew the meaning of *rigidity*. Size and shape must be the same for the property of rigidity to be satisfied.
- 6.2 General rules for reflection, rotation and transformation were poorly learnt.

Question 7

Candidates could not distinguish between clockwise and anti-clockwise formulae for rotation through any angle. Again, working with variables posed a problem. A significant number of candidates had no idea at all of what this section was all about, as if it had never been taught at school.

Question 8

Generally well answered or not at all. Candidates substituted incorrectly, e.g. substitute for α instead of $\cos\alpha$. Most drew the vector in the incorrect quadrant.

8.3 Many candidates wrote down the identity and then stopped.

Question 9

9.1 1st step generally very well answered, but simplification gave rise to many errors.

9.2 Co-function badly answered by candidates. Candidates did not convert to acute angles before substituting. Signs were poor.

9.3 General solutions were poorly answered. A lack of basic skills was demonstrated. Poor factorisation of trinomials.

Question 10

10.1 Most candidates got 1 mark for writing down the compound angle identity as it appeared on the formula page.

10.2 Hardly any candidates attempted this question.

Question 11

11.1.1 Sketch confusing. Candidates did not know what *bearing* meant. Candidates lacked basic geometry skills, because they had last been done in Grade 9. The Afrikaans paper used the term *rigting* which does not refer to degrees.

11.1.2 Mostly left out. Candidates had to do own construction in order to answer it.

11.2 Most candidates attempted the question. There were problems with changing the subject of the formula.

Question 12

12.1 Candidates paid very little attention to intercepts with the axes and turning points. Drawing of graphs is supposed to involve routine skills which can be taught easily using the calculator to plot points and using transformation rules.

12.2 Candidates could not handle solving equations using the graph.

12.3 – 12.5 Very badly attempted or not answered at all. Attention must be given to interpretation of graphs and their features. That $g'(x) = 0$ is the turning point was overlooked by many candidates.