

# Commentary on candidate evidence

The candidate evidence has achieved the following marks for each question.

## Candidate 1

### Question 1

- ◆ Marks 1 to 3 awarded
- ◆ Marks 4 to 6 awarded
- ◆ Mark 7 not awarded – general marking principle (j) highlights that fractions must be simplified.
- ◆ Mark 8 awarded

## Candidate 2

### Question 2

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 awarded – the additional working is subsequent to the correct answer and according to general marking principle (l) is not penalised.

## Candidate 3

### Question 2

- ◆ Mark 1 awarded
- ◆ Mark 2 not awarded – the candidate has used an incorrect inequality.
- ◆ Mark 3 not awarded – it was common to see candidates overcomplicating the linear inequality although note 3 explains that this mark would have been available.

## Candidate 4

### Question 2

- ◆ Mark 1 awarded
- ◆ Marks 2 & 3 not awarded – note 2 explains that these marks are not available for solving an equality.

## Candidate 5

### Question 3

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 awarded
- ◆ Mark 4 not awarded – note 6 explains how to deal with a response which is left in degrees.
- ◆ Mark 5 awarded – on follow through.
- ◆ Mark 6 awarded – on follow through.
- ◆ Mark 6 awarded – many candidates left answers in fractions in terms of  $\pi$ .

## Candidate 6

### Question 4(a)

- ◆ Mark 1 not awarded – note 1 tells us that ' $dx$ ' is required to gain mark 1.
- ◆ Mark 2 awarded – note 5 tells us not to penalise the continued presence of the integral sign.
- ◆ Mark 3 awarded – some candidates split their substitution into two parts.
- ◆ Mark 4 not awarded – error in the numerical processing.

## Candidate 7

### Question 4

- ◆ Mark 1 not awarded – note 1 tells us that ' $dx$ ' is required to gain mark 1.
- ◆ Mark 2 awarded – note 5 tells us not to penalise the continued presence of the integral sign.
- ◆ Mark 3 not awarded – errors in the substitution.
- ◆ Mark 4 not awarded – further processing errors.
- ◆ Mark 5 awarded
- ◆ Mark 6 awarded
- ◆ Mark 7 not awarded – statements of ' $-\frac{16}{3} = \frac{16}{3}$ ', were common.

## Candidate 8

### Question 5

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 awarded
- ◆ Mark 4 awarded
- ◆ Mark 5 not awarded – the mark is for expressing an *inequality* in standard quadratic form.
- ◆ Mark 6 awarded – for finding the roots.
- ◆ Mark 7 not awarded –Candidate C shows a similar response.

## Candidate 9

### Question 5

- ◆ Mark 1 awarded
- ◆ Mark 2 not awarded
- ◆ Mark 3 awarded
- ◆ Mark 4 awarded – on follow through.
- ◆ Mark 5 awarded
- ◆ Marks 6 & 7 not awarded – the candidate could have used the quadratic formula to gain further marks.

## Candidate 10

### Question 5(b)

- ◆ Mark 4 awarded
- ◆ Mark 5 awarded
- ◆ Mark 6 awarded – for finding the roots.
- ◆ Mark 7 not awarded – because of the inconsistency and lack of justification.

## Candidate 11

### Question 5(b)

- ◆ Mark 4 not awarded
- ◆ Mark 5 not awarded – because of the reversal of the inequality.
- ◆ Marks 6 & 7 not awarded – because this is not the solution of a quadratic inequality.

## Candidate 12

### Question 6

- ◆ Mark 1 not awarded
- ◆ Mark 2 awarded – Candidate C shows a similar response.
- ◆ Mark 3 not awarded – missing '+c'.
- ◆ Marks 4 & 5 not awarded – note 2 explains that only marks 1 and 2 are available to candidates who omit '+c'.

## Candidate 13

### Question 6

- ◆ Mark 1 not awarded
- ◆ Mark 2 awarded – Candidate D shows a similar response.
- ◆ Mark 3 not awarded – missing '+c'.
- ◆ Marks 4 & 5 not awarded – note 2 explains that only marks 1 and 2 are available to candidates who omit '+c'.

## Candidate 14

### Question 6

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 not awarded – missing '+c'.
- ◆ Marks 4 & 5 not awarded – note 2 explains that only marks 1 and 2 are available to candidates who omit '+c'. The missing '+c' led to 'unusual' algebraic manipulations.

## Candidate 15

### Question 7

- ◆ Marks 1 to 5 not awarded – note 1 explains that marks are only available for processing within a valid strategy using  $y = kx^n$ .

## Candidate 16

### Question 7

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 not awarded – processing error.
- ◆ Mark 4 awarded – on follow through.
- ◆ Mark 5 awarded – on follow through.

## Candidate 17

### Question 7

- ◆ Mark 1 not awarded
- ◆ Mark 2 not awarded – does not follow from the previous line of working but there is sufficient evidence of a valid strategy using  $y = kx^n$ .
- ◆ Marks 3 to 5 awarded – on follow through.

## Candidate 18

### Question 8

- ◆ Marks 1 to 3 not awarded – it was common to see trivial attempts at part (a).
- ◆ Mark 4 awarded
- ◆ Mark 5 awarded
- ◆ Mark 6 awarded
- ◆ Mark 7 not awarded
- ◆ Mark 8 not awarded
- ◆ Mark 9 not awarded

## Candidate 19

### Question 8(b)

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 awarded
- ◆ Mark 4 not awarded – there are two errors leading to the ‘correct’ response.
- ◆ Mark 5 not awarded –  $A'(x)$  incorrectly placed.
- ◆ Mark 6 awarded

## Candidate 20

### Question 8(b)

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 awarded
- ◆ Mark 4 not awarded
- ◆ Mark 5 not awarded – the ‘- 0 +’ in the table do not follow from the expressions given.
- ◆ Mark 6 not awarded

## Candidate 21

### Question 8(b)

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 awarded
- ◆ Mark 4 awarded
- ◆ Mark 5 not awarded – because of the use of  $-15$  in the nature table which does not fit into  $0 < a < 15$ .
- ◆ Mark 6 awarded

## Candidate 22

### Question 8(b)

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 awarded
- ◆ Mark 4 awarded
- ◆ Mark 5 not awarded – because of the label  $A(x)$ .
- ◆ Mark 6 awarded

## Candidate 23

### Question 9

- ◆ Mark 1 awarded
- ◆ Mark 2 awarded
- ◆ Mark 3 – factorising is incorrect
- ◆ Marks 4 & 5 not awarded – note 2 explains how to mark responses where the candidate's quadratic does not lead to two distinct real roots.
- ◆ Mark 6 awarded
- ◆ Mark 7 not awarded
- ◆ Marks 8 & 9 not awarded – this is the equation of the larger circle (see note 10).

## Candidate 24

### Question 10

- ◆ Mark 1 not awarded – poor calculator skills and unnecessary working were common.
- ◆ Mark 2 not awarded – transcription error from the IAAF values used in the question.
- ◆ Marks 3 to 5 not awarded

## Candidate 25

### Question 10(b)

- ◆ Mark 2 awarded
- ◆ Marks 3 to 5 not awarded – invalid working was common.

## Candidate 26

### Question 10

- ◆ Mark 1 awarded – unnecessary working was common.
- ◆ Mark 2 awarded
- ◆ Mark 3 awarded
- ◆ Marks 4 & 5 not awarded – many candidates struggled to convert the equation into logarithmic form.