



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2009

MATHEMATICAL LITERACY: PAPER II
MARKING GUIDELINES

Time: 3 hours

150 marks

These marking guidelines were used as the basis for the official IEB marking session. They were prepared for use by examiners and sub-examiners, all of whom were required to attend a rigorous standardisation meeting to ensure that the guidelines were consistently and fairly interpreted and applied in the marking of candidates' scripts.

At standardisation meetings, decisions are taken regarding the allocation of marks in the interests of fairness to all candidates in the context of an entirely summative assessment.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines, and different interpretations of the application thereof. Hence, the specific mark allocations have been omitted.

Please note that learners who provided alternate correct responses to those given in the marking guidelines will have been given full credit.

QUESTION 1

1.1 Answer Booklet. (13)

1.2.1 The phones will only be used during office hours which are normally during peak time. (1)

1.2.2 (a) Package 2. There is a monthly contract fee of R150 even if no calls are made. (2)

(b) There is a fixed constant cost for each second. (2)

(c) Monthly Cost 1 = Monthly Cost 2

$$(R0,04 \text{ per sec}) \times (\text{call time in sec}) = R150,00 + (R0,03 \text{ per sec}) \times (\text{call time in sec})^m$$

$$0,04x = R150 + 0,03x$$

$$0,04 - 0,03x = 150^m$$

$$0,01x = 150$$

$$x = \frac{150}{0,01}^m$$

$$= 15\,000 \text{ sec}^a$$

$$= 15\,000 \div 60^m$$

$$= 250 \text{ min}^{ca}$$

(5)

23 marks

QUESTION 2

$$2.1.1 \quad \overset{\text{m}}{\text{R1 000,00}} \div 8^{\text{a}} = \$ 125,00 \quad (3)$$

$$2.1.2 \quad \overset{\text{m}}{\text{£ 900}} \times \text{R17,50}^{\text{a}} = \text{R15 750,00} \quad (3)$$

2.2 Exchange on 30 June 2002

$$\text{£ 1 500} \times \overset{\text{m}}{\text{R17,56}} = \text{R26 340,00}^{\text{ca}}$$

Exchange on 31 July 2001

$$\text{£ 1 500} \times \text{R11,41} = \text{R17 115,00}^{\text{ca}}$$

$$\therefore \text{difference} = \overset{\text{m}}{\text{R26 340,00}} - \text{R17 115,00}$$

$$= \underline{\text{R9 225}^{\text{ca}}} \rightarrow \text{difference} \quad (6)$$

$$2.3 \quad \text{R12} - \text{R8} = \text{R4} \quad (3)$$

2.4 British Pound. The gap between the USD and the GBP got bigger indicating a stronger pound. (3)

18 marks
QUESTION 3

3.1 Answer Booklet. (3)

3.2 Answer Booklet. (13)

3.3 Holidays = R3 000,00 – (R1 000,00 + R1 150,00)

$$= \text{R850,00}$$

$$= \frac{\text{R850,00}}{\text{R3 000,00}} \times 360^{\circ \text{m}}$$

$$= 102^{\circ \text{ca}} \quad (4)$$

20 marks

QUESTION 4

4.1 Various answers.

Example:

- Earlier than 5 weeks it is an embryo and not a foetus.
- Too small to estimate.

(1)

4.2.1 Stage 7 – The gradient of the graph is steepest.

(3)

4.2.2 A woman normally gives birth before 40 weeks.

(2)

4.3.1 It indicates the weight of 85% of the boys in that weight for age group.

(2)

4.3.2 Yes. The son is well below weight, even lower than the 3rd percentile.

(3)

11 marks**QUESTION 5**5.1.1 Distance = 655 km – 563 km
= 92 km**OR**= 195 km – 103 km
= 92 km**OR**Distance = 7 km + 7 km + 18 km + 18 km + 42 km^{ma}
= 92 km^a

(3)

5.1.2 Various options but all directions must be mentioned.

(4)

Example: Travel 12 km in a northerly direction. Turn left into R705. Travel for 33 km until you get to Jacobsdal. Drive through the town. Continue for a further 19 km until you get to the N12. Turn right and drive along the N12 for 39 km until you reach Kimberley. (–1 mark for every mistake).

5.1.3 Hanover or Hanover Road

(If a candidate writes Colesberg 1 mark will be allocated)

(2)

5.1.4 (a) $(\text{Distance})^2 = (46,5 \text{ km})^2 - (41 \text{ km})^2$ ^m
 $= 481,25 \text{ km}^2$
 $\therefore \text{Distance} = 21,937 \dots$
 $= 22 \text{ km}$

(4)

(b) $\left. \begin{array}{l} - \text{ Not a perfect } 90^\circ \\ - \text{ Roads are not straight} \\ - \text{ Answer is rounded off} \end{array} \right\}$

(2)

5.2.1 D

(2)

$$5.2.2 \quad \text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}} \text{ m}$$

$$= \frac{41 \text{ km}}{75 \text{ km/h}} \text{ sub}$$

$$= 0,5466 \dots \text{ hours}$$

He will **not** make his meeting as it will take him longer than half an hour to get to work. (5)

5.2.3 (a) The journey begins at Philippolis. The starting point on the vertical axis is at the origin indicating that he starts at 0km from Philippolis. (2)

(b) The vehicle is stationary which could indicate that the driver is at Springfontein. (2)

(c) The vehicle is travelling towards Philippolis. Not travelling at a constant speed. (2)

5.3.1 (a) 450 000 (1)

(b) 549 999 (1)

$$5.3.2 \quad \frac{2\,130\,015 + 381\,562 + A + 1\,251\,216 + 158\,164 + 1\,325\,214}{6^a} = 961\,547^m$$

$$\frac{5\,246\,171 + A}{6} = 961\,547$$

$$5\,246\,171 + A = 5\,769\,282^m$$

$$A = \underline{523\,111}_{\text{ca}}$$

OR

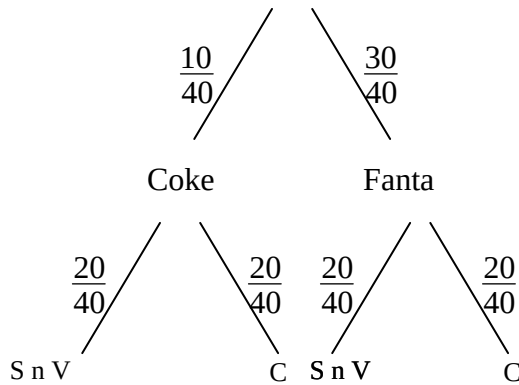
$$A = (961\,547 \times 6) - (2\,130\,015 + 381\,562 + 1\,251\,216 + 158\,164 + 1\,325\,214)$$

$$A = 5\,769\,282 - 5\,246\,171$$

$$A = 523\,111 \quad (5)$$

5.3.3 When the numbers are arranged in order, the value for A shares the middle with another number (1 251 216) and thus the median will be the mean of A and 1 251 216. (2)

5.4.1 (a)



for knowing what a tree diagram is
ratios

(b) $P(\text{coke, chutney}) = P(\text{coke}) \times P(\text{chutney})$

$$\begin{aligned}
 &= \frac{20}{40} \times \left(\frac{10}{40} + \frac{30}{40} \right) \\
 &= \frac{20}{40} \times \frac{40}{40} \\
 &= \frac{1}{2}
 \end{aligned}
 \quad (4)$$

5.4.2 $P(\text{fanta, chutney}) = P(\text{fanta}) \times P(\text{chutney})$

$$\begin{aligned}
 &= \frac{30}{39} \times \frac{19}{39} \\
 &= \frac{109}{507}
 \end{aligned}
 \quad (4)$$

5.5 Mean = $\frac{15+15+19+23+78}{5}$ ^a _m

$$\begin{aligned}
 &= \frac{150}{5} \\
 &= 30^a
 \end{aligned}$$

Median = 15 15 19 23 78 ^{order}

$$= 19^a$$

Mode = 15

ca

reason

The median best describes the teams' performance as it is the closest number to most of the scores.

The mean is affected by the outlier (78) and thus the mean is skewed.

The mode is the lowest score and is not a true reflection on the team's score as it does not take the higher scores into account.

(10)

59 marks

QUESTION 6

$$6.1.1 \quad \text{Area of Pond} = \frac{2,5}{100} \times 840 \text{ m}^2 \text{ m}$$

$$= 21 \text{ m}^2$$

$$\text{Area} = \pi \times r^2$$

$$21 \text{ m}^2 = \pi \times r^2 \text{ sub}$$

$$\frac{21}{\pi} = r^2 \text{ m}$$

$$6,68 \dots = r^2$$

$$2,585 = r$$

$$\underline{2,6 \text{ m}} \Rightarrow r$$

(7)

$$6.1.2 \quad \text{Circum} = 2 \times \pi \times r$$

$$= 2 \times \pi \times 2,8 \text{ sub m ca}$$

$$= 16,33 \text{ m}^{\text{ca}}$$

$$\therefore \underline{\text{Not enough fencing}}^{\text{ca}}$$

(4)

$$6.2 \quad V = \frac{1}{2} \times 3,5 \text{ m} \times 2 \text{ m} \times 0,45 \text{ m}$$

$$= 1,575 \text{ m}^3$$

$$0,75 \text{ m}^3 = \text{R}81,75$$

$$0,75 \text{ m}^3 = \text{R}81,75 \quad \text{m}$$

$$\underline{0,25 \text{ m}^3 = \text{R}35,75} \quad \text{a}$$

$$1,75 \text{ m}^3 = \text{R}199,25$$

$\therefore$ yes there is enough money to buy the sand.

(8)

19 marks

Total: 150 marks