



GRADE 11 EXAMINATION
NOVEMBER 2007

MATHEMATICS PAPER III (LO3 & LO4)

MARKING GUIDELINES

Time: 2 hours

100 marks

The marking guide is a working document prepared for use by teachers as they assess the Grade 11 externally set examinations.

There may be different interpretations of the marking guidelines but the teacher should keep as closely as possible to the suggested way of assessing. When in doubt, a teacher should check with another member of the cluster or with the relevant Assessment Specialist.

SECTION A

QUESTION 1

(a)(1) $P(M \cap CB) = \frac{393}{10000}$ ✓
 $= 0,094$ ✓

(2)

(2) $P(M) \cdot P(CB) = 0,49 \times 0,0408$ ✓
 $= 0,02$ ✓
 \therefore Not independant ✓

(3)

OR: $\frac{393}{4910} > \frac{15}{5090}$ ✓
 \therefore Not independant ✓

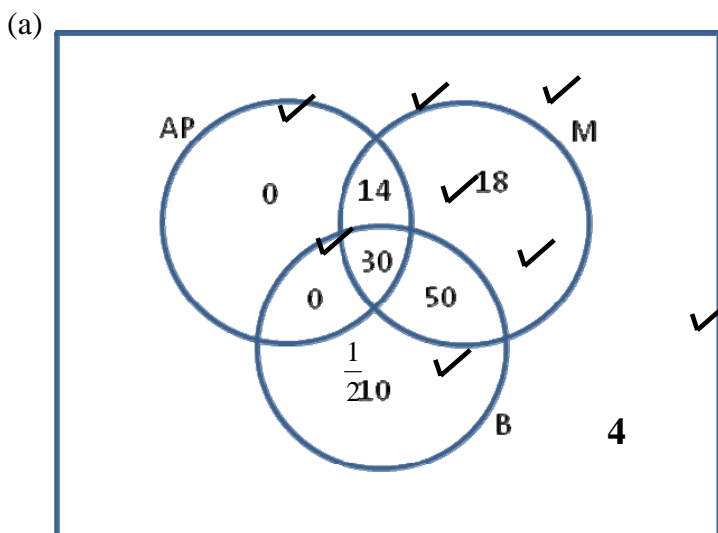


(4)

(2) $\frac{1}{2} \cdot \frac{3}{5} + \frac{1}{2} \cdot \frac{5}{9}$ ✓
 $= 0,58$ ✓

(5)

QUESTION 2



(8)

(b)(1) $\frac{4}{126}$ ✓✓

(2)

(2) $\frac{32}{126}$ ✓✓

(2)

(3) $\frac{122}{126}$ ✓✓

(2)

(4) $1 - \frac{80}{126}$ ✓
 $= \frac{46}{126}$ ✓

(3)

QUESTION 3

(a) The fastest girl ran a time of 8,1s and the fastest boy ran a time of 7,4s. However, half the boys ran a time slower than that of the fastest girl. Also the slowest boy ran 9,1s with only 5 girls running a time slower than that.

The 1st statement is incorrect. The 2nd statement is correct.

(4)

(b) Mean – will decrease ✓✓

Median – unchanged at 8,5s ✓✓

Mode – unchanged at 8,5s ✓✓

(6)

QUESTION 4

MRS A only looked at the graph presented to her. She did not see the misleading scale used on the Y-axis of the graph which gives the impression that theft has decreased tremendously. She validly read into the graph exactly what was expected.

MR B realised that the time line used was misleading – looking at the fact that 64 phones were stolen during the first 5 days in April – the problem has actually not been addressed at all. He raises a very valid point as the school tried to mislead by using this presentation and not placing the focus on maybe how many phones were stolen per day.

(6)

SECTION B

QUESTION 5

$$b = d = 80^\circ \checkmark$$

$$e = 3,8 \checkmark$$

$$f = 2 \checkmark$$

$\triangle ABC$ similar to $\triangle EDF \checkmark$

$$j = 56^\circ \checkmark$$

$$p = 75^\circ \checkmark$$

$$n = 30^\circ \checkmark$$

\triangle 's not similar \checkmark

(6)

QUESTION 6

$$\frac{\text{Unknown}}{\text{Length 2}} = \frac{\text{Height 1}}{\text{Length 1}}$$

$$\checkmark \frac{\text{Unknown}}{37,5} = \frac{1,8}{3,5} \checkmark$$

$$\therefore \text{Unknown} = \frac{1,8}{3,5} \times 37,5 \checkmark$$

$$\therefore = 19,29m \checkmark$$

(4)

QUESTION 7

(a) $\triangle XMN$ and $\triangle XYZ \checkmark$

$$\frac{XN}{XZ} = \frac{8}{36} = \frac{2}{9} \checkmark$$

$$\frac{XM}{XY} = \frac{12}{54} = \frac{2}{9} \checkmark$$

$$\frac{NM}{YZ} = \frac{8}{36} = \frac{2}{9}$$

$\therefore \triangle XMN \parallel \triangle XYZ$ sides in proportion \checkmark

(4)

(b) $\frac{MP}{PA} = \frac{MR}{RB}$ line || one side Δ ✓
 $\frac{MR}{RB} = \frac{MS}{SC}$ line || one side Δ ✓
 $\therefore \frac{MP}{PA} = \frac{MS}{SC}$ ✓
 $\therefore PS \parallel AC$ sides in proportion ✓

(6)

QUESTION 8

(a) $AD = 2$ units ✓
 $CD = 3$ units ✓

(2)

(b) $AM = \sqrt{(4-2, 4)^2 + (0-1, 2)^2}$ ✓
 $= \sqrt{4}$
 $= 2$ units ✓
 $MB = \sqrt{(2, 4-0)^2 + (1, 2-3)^2}$ ✓
 $= \sqrt{9}$
 $= 3$ units ✓

(4)

(c)(1) $\frac{2}{3}$ ✓

(1)

(c)(2) $\frac{2}{3}$ ✓

(1)

(d) Lines MD and BC are parallel ✓
 Converse of proportional sides theorem ✓

(2)

QUESTION 9

(a) J and K are midpoints ✓
 $\therefore JK \parallel GI$ midpoint theorem ✓

(3)

(b) $FH^2 = 6^2 + 8^2$ pythagoras ✓
 $\therefore FH = 10$ units ✓

(2)

(c) $OH = 5$ units ✓diag's bisect
 $\therefore ON = 2,5$ unitsmidpoint theorem ✓

(3)

(d) $GJPI$ a \parallel^m opp sides \parallel ✓
 $\therefore IP = 4$ units opp sides of \parallel^m ✓ ✓

QUESTION 10

(a) $\triangle EOA$ ✓✓ (order of similarity) (2)

(b)(1) $\triangle ABC$ and $\triangle DBA$
 \hat{B} ...common ✓
 $\hat{A}_1 = \hat{D}_1$...given ✓
 $\hat{C}_1 = \hat{A}_1 + \hat{A}_2$...3rd $\angle \Delta$ ✓
 $\therefore \triangle ABC \parallel \triangle DBA$ (3)

(b)(2) $\triangle DBA$ and $\triangle AED$
 $\hat{D}_1 = \hat{A}_3$...Alt \angle 's ✓
 $\hat{B} = \hat{E}$...opp \angle 's \parallel^m ✓
 $\hat{A} = \hat{D}$...3rd $\angle \Delta$ ✓
 $\therefore \triangle DBA \parallel \triangle AED$ (3)

(c) $\frac{AB}{DB} = \frac{BC}{AB}$ ✓
 $\therefore AB^2 = \frac{4.8}{1}$
 $\therefore AB = 5,66$ units ✓
 $\frac{AC}{BC} = \frac{AD}{AB}$ ✓
 $\therefore AC = \frac{9.4}{5,66}$
 $\therefore AC = 6,36$ units ✓ (4)