



Province of the
EASTERN CAPE
EDUCATION

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**TO: DISTRICTS HEADS OF EXAMINATIONS
PRINCIPALS OF SCHOOLS IN THE FET BAND**

**FROM: CES: INSTRUMENT DEVELOPMENT AND MODERATION SECTION
MS N. MBELEKI**

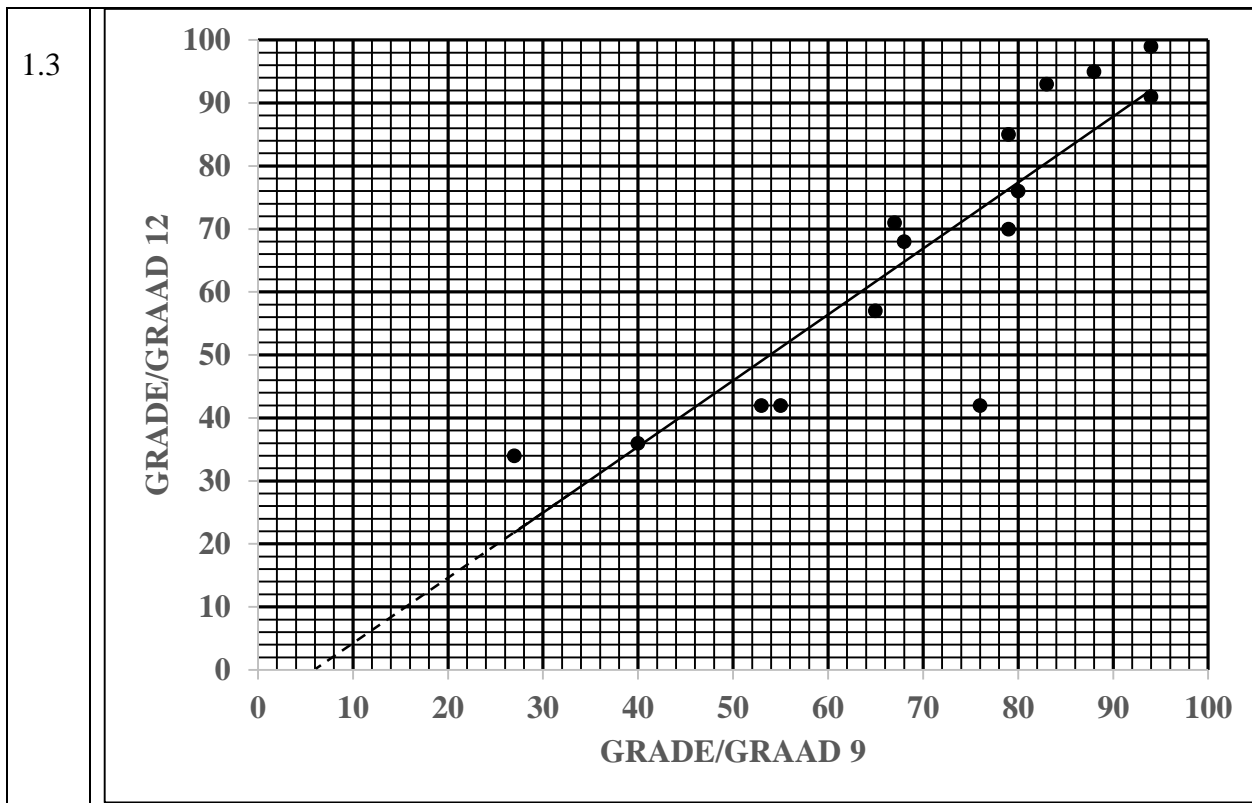
SUBJECT: ERRATA – MATHEMATICS P2 (SEPTEMBER 2018)

DATE: 2018

The MATHEMATICS P2 Grade 12 (September) was written on, 17 September 2018. We were made aware of certain errors, amendments and omissions that were discovered during the marking process.

In order to address this and to ensure that learners are not disadvantaged, the following standardised approach to marking must be adopted across the Province. The following guidelines with regard to marking was prepared in conjunction with the examiner and moderator.

QUESTION 1/VRAAG 1



QUESTION 2/VRAAG 2

| | | | |
|-----|--|--|------------|
| 2.1 | $\text{Range/Omvang} = 29 - 10$ $= 19$ | ✓ answer / antwoord | (1) |
| 2.2 | $\bar{x} = \frac{15 + 23 + 17 + 24 + 26 + 18 + 28 + 13 + 10 + 28 + 29}{11}$ $= \frac{231}{11}$ $= 21$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Answer ONLY full marks Slegs antwoord - volpunte </div> | ✓ 231 ✓ answer / antwoord | (2) |
| 2.3 | $\sigma = 6,37$ | ✓✓ answer/antwoord | (2) |
| 2.4 | $(21 - 6,37; 21 + 6,37) = (14,63; 27,37)$ 5 weeks/weke | ✓ min ✓ max/maks ✓ answer / antwoord | (3) |
| | | | [8] |

QUESTION 3 / VRAAG 3

| | | | |
|-----|-----------|--|-----|
| 3.2 | OR | ✓ subst. A(p ; 3) in equation of line AB ✓ simplification | (3) |
|-----|-----------|--|-----|

| | | | |
|-----|--|---|-----|
| | $3 = -3(p) - 12$ $15 = -3p$ $-5 = p$ | ✓ value p | |
| 3.5 | OR $AB = \sqrt{(-3+5)^2 + (-3-3)^2}$ $= 2\sqrt{10}$ $AE = \sqrt{(-4+5)^2 + (0-3)^2}$ $= \sqrt{10}$ $\therefore E$ is the midpoint of AB [$AE = EB = 10$] E is the midpoint of AB and M the midpoint of AC from 3.4 $\therefore EM \parallel BC$ [midpoint theorem] | ✓ correct subst ✓ $AB = 2\sqrt{10}$ ✓ $AE = \sqrt{10}$ ✓ R | (4) |

| | | | |
|-----|---|---|-----|
| 3.6 | $\tan \beta = -3$ $\beta = 108,4349488^\circ$ $\tan \theta = \frac{8}{5}$ $\theta = 57,99461679^\circ$ $\therefore \hat{A}BC = 50,44^\circ$ | ✓ size of θ / grootte van θ ✓ size of α / grootte van α ✓ size of $\hat{A}BC$ / grootte van $\hat{A}BC$ | (4) |
|-----|---|---|-----|

QUESTION 4 / VRAAG 4

| | | | |
|-----|--|--|-----|
| 4.3 | $m_{PQ} = \frac{-3+6}{0-9}$ $= -\frac{1}{3}$ $m_{QR} = \frac{-6+9}{9-8}$ $= 3$ $\therefore \hat{P}QR = 90^\circ$ [$m_{PQ} \times m_{QR} = -\frac{1}{3} \times 3 = -1$] | ✓ correct substitution <i>korrekte vervanging</i> ✓ m_{PQ} ✓ m_{QR} ✓ $m_{PQ} \times m_{QR} = -\frac{1}{3} \times 3$ | (4) |
| | OR | ✓ PQ^2 ✓ QR^2 | |

| | | |
|--|---|---|
| | $PQ^2 = (0-9)^2 + (-3+6)^2$ $= 90$ $QR^2 = (9-8)^2 + (-6+9)^2$ $= 10$ $PR^2 = (0-8)^2 + (-3+9)^2$ $= 100$ <p>but $PQ^2 + QR^2 = 90 + 10 = 100$</p> $\therefore PR^2 = PQ^2 + QR^2 \text{ [conv. Pyth]}$ $P\hat{Q}R = 90^\circ$ | <p>✓ PR^2</p> <p>✓ R</p> <p style="text-align: right;">(4)</p> |
|--|---|---|

QUESTION 6 / VRAAG 6

| | | |
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| 6.1 | OR $a = -2$ and $p = -150^\circ$ | |
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QUESTION 7 / VRAAG 7

| | | | |
|-----|---|--|-----|
| 7.1 | $AB = 2k$ $AC = \sqrt{(2k)^2 + k^2 - 2 \cdot 2k \cdot k \cdot \cos 2\theta}$ $= \sqrt{5k^2 - 4k^2 \cdot \cos 2\theta}$ $= \sqrt{k^2(5 - 4(1 - 2\sin^2 \theta))}$ $= \sqrt{k^2(5 - 4 + 8\sin^2 \theta)}$ $= k\sqrt{1 + 8\sin^2 \theta}$ | <p>✓ AB i.t.o / i.t.v $2k$</p> <p>✓ cosine rule formula in ΔABC <i>kosinusreël formule in ΔABC</i></p> <p>✓ correct subst. / <i>korrekte vervanging</i></p> <p>✓ $\cos 2\theta = 1 - 2\sin^2 \theta$</p> <p>✓ simplification / <i>vereenvoudiging</i></p> | (5) |
|-----|---|--|-----|

QUESTION 9 / VRAAG 9

| | | | |
|-----|--|--------------------------------------|-----|
| 9.3 | $\hat{X}_1 = \hat{V}_4$ [corresp \angle s, $XY \parallel UV$] / [ooreenk. \angle e., $XY \parallel UV$] $\hat{V}_3 = \hat{V}_4$ [given] / [gegee] $\hat{V}_3 = \hat{W}_2$ [corresp \angle s, $WZ \parallel UV$] / [ooreenk. \angle e, $WZ \parallel UV$] $\therefore \hat{X}_1 = \hat{W}_2$ WXYZ is cyclic quad [converse \angle s same segment/ line subt = \angle s] WXYZ is 'n koordevierhoek [omgekeerde \angle ein dieselfde segment of lyn onderspan = \angle s] | <p>✓ S/R</p> <p>✓ S/R</p> <p>✓ R</p> | (3) |
|-----|--|--------------------------------------|-----|

QUESTION 10 / VRAAG 10

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|--------|--|---|-----|
| 10.2 | | | |
| 10.2.1 | $\hat{N}_1 = 90^\circ$ [\angle subt by diameter / \angle in semi - circle] [\angle <i>onderspan deur middellyn</i> / \angle in semi - sirkel] $\therefore LN = NP$ [line from centre \perp to chord] / [<i>lyn vanaf die middelpunt \perp op koord</i>] | \checkmark S \checkmark R \checkmark R | (3) |
| | OR $NM = NM$ [<i>common</i>] $\hat{N}_1 = \hat{N}_2 = 90^\circ$ $PM = LM$ $\therefore \triangle PMN \equiv LMN$ [<i>RHS</i>] $\therefore LN = NP$ | \checkmark SSS \checkmark S \checkmark R | |
| 10.2.2 | $\hat{P}_4 = \hat{L}$ [tangent chord theorem]/[<i>raaklyn - koord stelling</i>] $L\hat{P}R = 90^\circ$ [\angle subt by diameter]/[\angle <i>onderspan deur middellyn</i>] $\therefore \hat{R}_2 = 90^\circ - \hat{P}_4$ [\angle s/e of/ <i>van</i> $\triangle LPR$] $\hat{R}_1 = 90^\circ - \hat{P}_4$ [\angle s/e of/ <i>van</i> $\triangle RPQ$] | \checkmark S \checkmark R \checkmark S/R \checkmark S | (4) |
| 10.2.3 | $\hat{N}_1 = \hat{Q}$ [both = 90° / <i>beide = 90°</i>] $\hat{P}_2 = \hat{L}$ [\angle s opp.=sides] / [<i>Le teenoor = sye</i>] $= \hat{P}_4$ $\hat{M}_2 = \hat{R}_1$ [$3^{rd/de}$ \angle] $\therefore \triangle PNM \equiv \triangle PQR$ [$\angle\angle\angle$] | \checkmark S \checkmark S \checkmark R \checkmark R | (4) |

| | | | |
|--------|---|--|-----|
| 10.3.1 | <p>In $\triangle PQR$ and/en $\triangle QPR$</p> <p>$\hat{L}PR = \hat{Q}$ [both/beide = 90°]</p> <p>$\hat{R}_2 = \hat{R}_1$ [proved/alreeds bewys]</p> <p>$\hat{L} = \hat{P}_4$ [$3^{\text{rd/de}}$ \sphericalangle]</p> <p>$\triangle PQR \parallel \triangle QPR$ [$\sphericalangle \sphericalangle \sphericalangle$]</p> <p>$\therefore \frac{LR}{PR} = \frac{PR}{QR}$</p> <p>$LR = \frac{30^2}{15}$</p> <p>$= 60$</p> | <p>✓ SSS</p> <p>✓ R</p> <p>✓ ratios / verhoudings</p> <p>✓ substitution / vervanging</p> <p>✓ LR</p> | (5) |
| 10.3.2 | <p>$NM \parallel PR$ [co-int \sphericalangles supp OR corresp \sphericalangles =]</p> <p>[ko - binne \sphericalanglee suppl. OF ooreenk. \sphericalanglee =]</p> <p>$\therefore NM = \frac{1}{2} PR$ [midpoint theorem / middelpunt stelling]</p> <p>$\sin x = \frac{30\sqrt{3}}{15}$</p> <p>$x = 60^\circ$</p> | <p>✓ R</p> <p>✓ R</p> <p>✓ ratio/verhouding</p> <p>✓ value of x / waarde van x</p> | (4) |
| | <p>OR</p> <p>$NM \parallel PR$ [co-int \sphericalangles supp OR corresp \sphericalangles =]</p> <p>[ko - binne \sphericalanglee sup pl. OF ooreenk \sphericalanglee =]</p> <p>$\therefore NM = \frac{1}{2} PR$ [midpoint theorem / middelpunt stelling]</p> <p>$\cos x = \frac{15}{30}$</p> <p>$x = 60^\circ$</p> | <p>✓ R</p> <p>✓ R</p> <p>✓ ratio/verhouding</p> <p>✓ value of x / waarde van x</p> | |



MS N. MBELEKI

21 SEPTEMBER 2018

DATE