Province of the
EASTERN CAPE
EDUCATION

CHIEF DIRECTORATE: EXAMINATIONS AND ASSESSMENT
Steve Vukile Tshwete Complex, Zone 6 Zwelitsha, 5608, Private Bag X0032, Bhisho, 5605 REPUBLIC OF SOUTH AFRICA:
Enquiries**: Mrs P. Japhta. Tel: 040 602 7031. Fax: 040 602 7295. E-mail:** Penelope.Japhta@ecdoe.gov.za
Website: www.ecdoe.gov.za

Ref. no.	13/P	Tel.:	(040) 608 7031/060 523 8658
Enquire:	Mrs P. Japhta	Fax:	040 608 7295

ERRATUM

TO: **CHIEF EDUCATION SPECIALISTS**
DISTRICT CURRICULUM COORDINATORS
DISTRICT ASSESSMENT OFFICIALS (DAOs
DISTRICT SUBJECT ADVISORS (DSAs)
PROVINCIAL SUBJECT COORDINATORS
CIRCUIT MANAGERS
DEPUTY CHIEF EDUCATION SPECIALISTS
SENIOR EDUCATION SPECIALISTS
PRINCIPALS OF SCHOOLS IN THE FET BAND

SUBJECT: **ERRATUM – TECHNICAL MATHEMATICS P2 GRADE 12 JUNE COMMON 2024**

DATE: **31 MAY 2024**

The Technical Mathematics P2 Grade 12 June Common Examination was written on Monday, 27 May 2024. We were made aware of certain amendments and omissions that were discovered during the marking process and memorandum discussion on the provided marking guideline.

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 regarding marking was prepared in conjunction with the examiner and moderator.

QUESTION/*VRAAG* 1

1.2	$\tan\beta = m_{OB}$ $\tan\beta = \frac{5}{23}$ $\therefore \beta = 12{,}26°$	✓ **M** ✓ **Subst.** **CA** ✓ **S** **CA** (3)
1.3	$\tan\alpha = m_{OB}$ $\tan\alpha = \frac{6}{5}$ $\therefore \beta = 50{,}19°$ $\therefore A\hat{O}B = 50{,}19° - 12{,}26° = 37{,}93° \approx 38°$	✓ **M** ✓ **Subst.** **CA** ✓ **S** **CA** ✓ **Answer** **CA** (4)

QUESTION/VRAAG 2

2.1.3	$(2\,;3)$	✓ x-value **A** ✓ y-waarde **A** (2)

QUESTION/*VRAAG* 3

3.1.2	$\frac{3}{-\sqrt{6}}$	✓ **Answer** **CA** (1)

QUESTION/*VRAAG* 4

4.1	$\frac{\sin(180°-\theta)\tan(180°+\theta)\,sin(270°)}{\cos(360°-\theta)\tan(180°-\theta)}$ $= \frac{\sin(\theta).\tan(\theta).(-1)}{\cos(\theta).-\tan(\theta)}$ $= tan\theta$	✓ $\sin(\theta)$ **A** ✓ $\tan(\theta)$ **A** ✓ -1 **A** ✓ $\cos(\theta)$ **A** ✓ $-\tan(\theta)$ **A** ✓ $\tan(\theta)$ **A** (6)
4.2	$(cosec\,B - \cot B)^2 = \frac{1-\cos B}{1+\cos B}$ $LHS = (cosec\,B - \cot B)^2$ $LHS = \left(\frac{1}{\sin B} - \frac{1}{\tan B}\right)^2$ $LHS = \left(\frac{1}{\sin B} - \frac{\cos B}{\sin B}\right)^2$ $LHS = \left(\frac{1-\cos B}{\sin B}\right)^2$ $LHS = \frac{(1-\cos B)^2}{\sin^2 B}$ $LHS = \frac{(1-\cos B)^2}{1-cos^2 B}$ $LHS = \frac{(1-\cos B)^2}{(1-\cos B)(1+\cos B)}$ $LHS = \frac{1-\cos B}{1+\cos B} = RHS$ ***IDENTITY CAN NOT BE SOLVED, BUT IF LEARNERS PROVE AS PER MARKING GUIDELINE, FULL MARKS**	✓ $\frac{1}{\sin B}$ **A** ✓ $\frac{1}{\tan B}$ **A** ✓ $\frac{\cos B}{\sin B}$ **A** ✓ $\frac{1-\cos B}{\sin B}$ **S** ✓ $\frac{(1-\cos B)^2}{1-cos^2 B}$ **S** ✓ $(1-\cos B)(1+\cos B)$ **S** (6)

QUESTION/*VRAAG* 5

5.4.2	$120° < x < 180°$	✓✓$120° < x < 180°$ **CA** (2)

QUESTION/*VRAAG* 6

6.2.3	$\frac{AC}{sinB} = \frac{BC}{sinB\hat{A}C}$ $\frac{AC}{sin81°} = \frac{48}{sin2°}$ $AC = \frac{48}{sin2°} \times sin81°$ $AC = 1358{,}44\,m$	✓ **F** ✓ **SF** **CA** ✓ **S** **CA** ✓ AC value / *waarde* (4)

6.2.5	$AC^2 = AD^2 + CD^2$ $(1358{,}44)^2 = (1348{,}31)^2 + CD^2$ $27419{,}3775 = CD^2$ $165{,}59\ m = CD$ **OR / *OF*** $tan7° = \frac{CD}{AD}$ $tan7° = \frac{CD}{1348{,}31}$ $165{,}59\ m = CD$ **OR / *OF*** $sin7° = \frac{CD}{AC}$ $sin7° = \frac{CD}{1358{,}44}$ $165{,}59\ m = CD$	✓ **F** **A** ✓ **SF** **CA** ✓ height **CA** ✓ **F** **A** ✓ **SF** **CA** ✓ height **CA** ✓ **F** **A** ✓ **SF** **CA** ✓ height **CA** (3)

QUESTION/*VRAAG* 7

7.3	$\hat{O}_1 = 60°$ $(\angle\ at\ centre = 2 \times \angle\ at\ circumf)$ $\therefore QS \parallel PQ$ (co-interior ∠s at to 180°) ∴ PQSO is a parm (opp sides ||) ∴ Δ PQS ≡ Δ SOP (diag. bisect area / *hoeklyne halveer opp.*) **OR / *OF*** In Δ PQS and Δ SOP: 1. $\hat{S}_2 = \hat{S}_1$=30° (proven / bewys) 2. PS common/*gemeenskaplik* 3. $\hat{S}_2 = \hat{P}_2 = 30°$ (∠s opp = sides / *∠e teenoor = sye*) ∴ Δ PQS ≡ Δ SOP (∠S∠) **OR / *OF*** PQSO is a rhombus (diag. ⊥ / *hoeklyne ⊥*) Δ PQS ≡ Δ SOP (diag. bisect area / *hoeklyne halveer opp.*)	✓ **ST** **A** ✓ **ST** **A** ✓ **ST** **A** (3)

QUESTION/*VRAAG* 8

8.1	$\hat{S}_1 = x$ (tan-chord thm / stelling) $\hat{P}_2 = x$ (<'s in same segment / <'e in dieselfde segment) **OR / *OF*** (tan-chord thm / stelling) $\hat{R}_2 = x$ (alt. <'s = / verw. <'e = ; VQ∥RP) $\hat{S}_2 = x$ (<'s in same segment / <'e in dieselfde segment) $\hat{Q}_3 = x$ (<'s opp = sides / <'e teenoor = sye) $\hat{R}_3 = x$ (<'s in same segment / <'e in dieselfde segment)	✓ **ST** ✓ **RE** **A** ✓ **ST** ✓ **RE** **A** ✓ **ST** ✓ **RE** **A** ✓ **ST** ✓ **RE** **A** **ANY FOUR ANGLES** (8)

QUESTION/*VRAAG* 9

9.1	In ΔCRQ: RD = DC (given / gegee) RB = BQ (given / gegee) ∴ BD ∥ CQ and BD = ½ CQ (midpt thm / *stelling*) **OR / *OF*** BD ∥ AC (Midpt thm / *stelling*) – FULL MARKS	✓ **ST** **A** ✓ **ST** **A** ✓ **RE** **A** ✓✓✓ **Answer** (3)
9.2	In ΔPBD: PC = CD (given / gegee) BD ∥ CQ (given / gegee) ∴ PA = AB and AC = ½ BD (midpt thm / stelling) **OR / *OF*** PA = AB (line ∥ one side of Δ / *lyn ∥ een sy van*) – FULL MARKS	✓ **ST** **A** ✓ **ST** **A** ✓ **RE** **A** ✓✓✓ **Answer** (3)
9.3	**CANNOT BE SOLVED** **PAPER TO BE MARKED OUT OF 144**	

QUESTION/*VRAAG* 10

10.2	$v = \pi Dn$ $2044{,}8\ km/h = \pi(0{,}0034\ km)n$ $\therefore n = \frac{2044{,}8}{0{,}0034\pi}$ $\therefore n \approx 191435{,}31\ rev/h$ **OR / *OF*** $v = \pi Dn$ $568 m/s = \pi(3{,}4\ m)n$ $\therefore n = \frac{568}{3{,}4\pi}$ $\therefore n \approx 53{,}18\ rev/s$ $\therefore n \approx 191435{,}31\ rev/h$	✓**F** **A** ✓ conv / *herl* ✓ **SF** **A** ✓ **S** **CA** ✓ answ / *antw* **CA** ✓**F** **A** ✓ conv / *herl* ✓ **SF** **A** ✓ **S** **CA** ✓ answ / *antw* **CA** (5)
10.3	$\omega = 2\pi n$ $\omega = 2\pi(191435{,}31\ )$ $\omega \approx 1202823{,}53\ rad/h$ $\omega \approx 334{,}14\ rad/s$ **OR / *OF*** $n \approx \frac{191435{,}31}{3600} rev/h$ $n \approx 53{,}1765\ rev/s$ $\omega = 2\pi n$ $\omega = 2\pi(53{,}18\ )$ $\omega \approx 334{,}14\ rad/s$	✓**F** **A** ✓ **SF** **CA** ✓ answer / *antwoord* ✓**F** **A** ✓ **SF** **CA** ✓ answer / *antwoord* (3)

10.4	$v = \frac{2044,80}{3600}$ $v = 0,568\ km/s$ $s = vt$ **OR / *OF*** D = ST $s = 0,568 \times 15$ $s = 8,52\ km$	✓ **F** **A** ✓ **SF** **CA** ✓ answer / *antwoord* (3)

QUESTION/*VRAAG* 11

11.1.3	$Length = 30$ cm	✓✓✓ **Answer** (3)
11.3	$A_T = a\left(\frac{o_1+o_n}{2} + o_2 + o_3 + o_4 + \ldots + o_{n-1}\right)$ $63,525 = \left(\frac{11,55}{7}\right)\left(\frac{7+3}{2} + 6,5 + x + 5 + 7,5 + 6 + 4\right)$ $63,525 = (1,65)(34 + x)$ $38,5 = 34 + x$ $4,5 = x$ **OR/ *OF*** $A_T = a(m_1 + m_2 + m_3 + \ldots + m_{n-1})$ $63,525 = \left(\frac{11,55}{7}\right)\left(6,75 + \frac{6,5+x}{2} + \frac{x+5}{2} + 6,25 + 6,75 + 5 + 3,5\right)$ $63,525 = (1,65)\left(28,25 + \frac{11,5+2x}{2}\right)$ $38,5 = 28,25 + \frac{11,5+2x}{2}$ $10,25 = \frac{11,5+2x}{2}$ $20,5 = 11,5 + 2x$ $9 = 2x$ $4,5 = x$	✓**F** **A** ✓**SF** **A** ✓**S** **CA** ✓ value of x **CA** ✓**F** **A** ✓**SF** **A** ✓**S** **CA** ✓ value of x **CA** (4)

TOTAL OF QUESTION PAPER TO BE 144

We sincerely apologise for any inconvenience we might have caused.

Yours in education.

31 May 2024

MRS P.E. JAPHTA **DATE**
(A) CES: AIDIBM SUBDIRECTORATE