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education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 10

MATHEMATICS P2
JUNE 2024
MARKING GUIDELINES

MARKS: 75

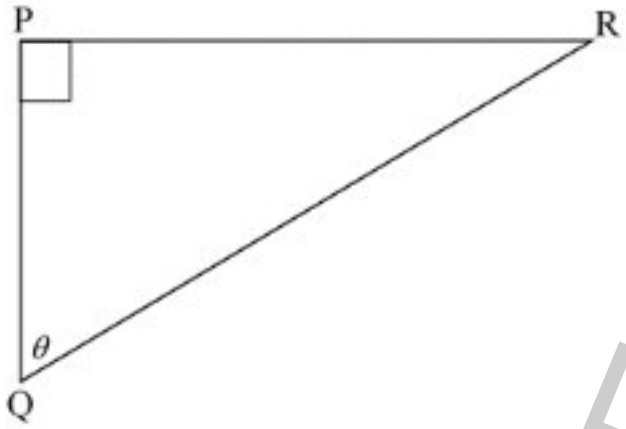
These marking guidelines consist of 8 pages.

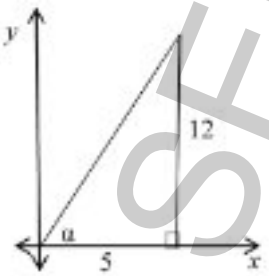
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QUESTION 1

1.1



1.1.1	$\frac{PR}{PQ}$	✓ answer (1)
1.1.2	$\sec(90^\circ - \theta) = \frac{QR}{PR}$	✓ ✓ answer (2)
1.2.1	$\sin(40° - 25°)$ $= \sin(15°)$ $= 0{,}26$	✓ sin 15 ✓ answer (2)
1.2.2	$\frac{\cos 25^\circ}{2} - \cot\frac{25^\circ}{2}$ $= \frac{\cos 25^\circ}{2} - \frac{1}{\tan(12{,}5^\circ)}$ $= -4{,}06$	✓ correct substitution ✓ answer (2)
1.3		
1.3.1	$r^2 = x^2 + y^2$ – Theorem of pythagoras $r^2 = 5^2 + 12^2$ $r = 13$ $\cos\theta = \frac{5}{13}$	✓ $r = 13$ ✓ $\cos\theta = \frac{5}{13}$ (2)

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1.3.2	$(\cos\theta+\sin\theta)^2$ $=\left(\frac{12}{13}+\frac{5}{13}\right)^2$ $=\left(\frac{17}{13}\right)^2$ $=\frac{289}{169}$	✓ substitution ✓ answer (2)

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QUESTION 2

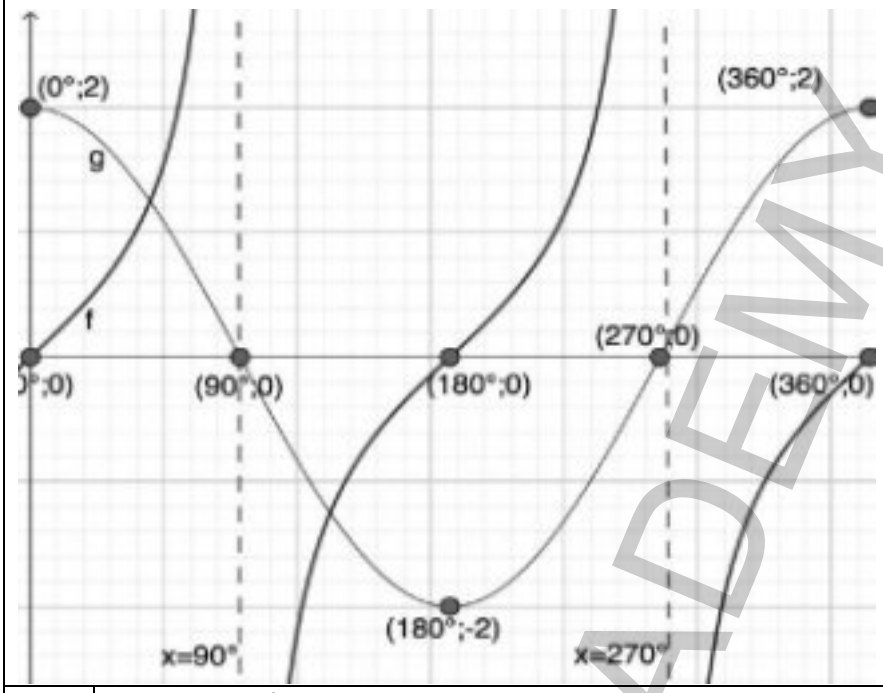
2.1	$\cos60°+\tan^2(45°)-\sin 0°$ $=\frac{1}{2}+\left(\frac{1}{\sqrt{2}}\right)^2-0$ $=\frac{1}{2}+\frac{1}{2}$ $=1$	✓ $\frac{1}{2}$ ✓ $\left(\frac{1}{\sqrt{2}}\right)^2$ ✓ 0 ✓ (4)
2.2.1	$\frac{\sin x}{0,2}-2=1,24$ $\frac{\sin x}{0.2}=3,24$ $\sin x=3.24\times0.2$ $\sin x=0.648$ $x=\sin^{-1}(0.648)$ $x=40,39^\circ$	✓ 3,24 ✓ $\sin x=0,648$ ✓ answer (3)
2.2.2	$\tan\frac{x}{2}-\frac{1}{\sqrt{3}}=0$ $\tan\frac{x}{2}=\frac{1}{\sqrt{3}}$ $\frac{x}{2}=30^\circ$ $x=60°$	✓ $\tan\frac{x}{2}=\frac{1}{\sqrt{3}}$ ✓ $\frac{x}{2}=30^\circ$ ✓ answer (3)

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QUESTION 3

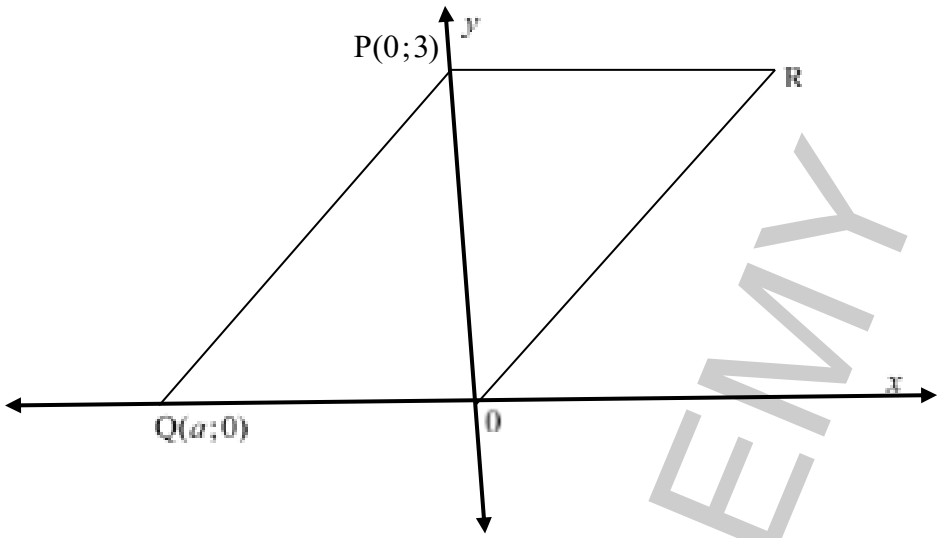
3.1	$f(x)=\tan x$ and $g(x)=2\cos x$ for $0° \le x \le 360°$.  	***f* graph** ✓ *y*-intercept ✓ *x*-intercept ✓ Asymptotes ✓ Shape ***g* graph** ✓ *y*-intercept ✓ *x*-intercept ✓ T.P ✓ Shape (8)
3.2.1	Period $=180°$	✓ answer (1)
3.2.2	Amplitude = 2	✓ answer (1)
3.3.1	$x=0°$ $x=360°$	✓$x=0°$ ✓$x=360°$ (2)
3.3.2	$x=180°$	✓ answer (1)

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QUESTION 4



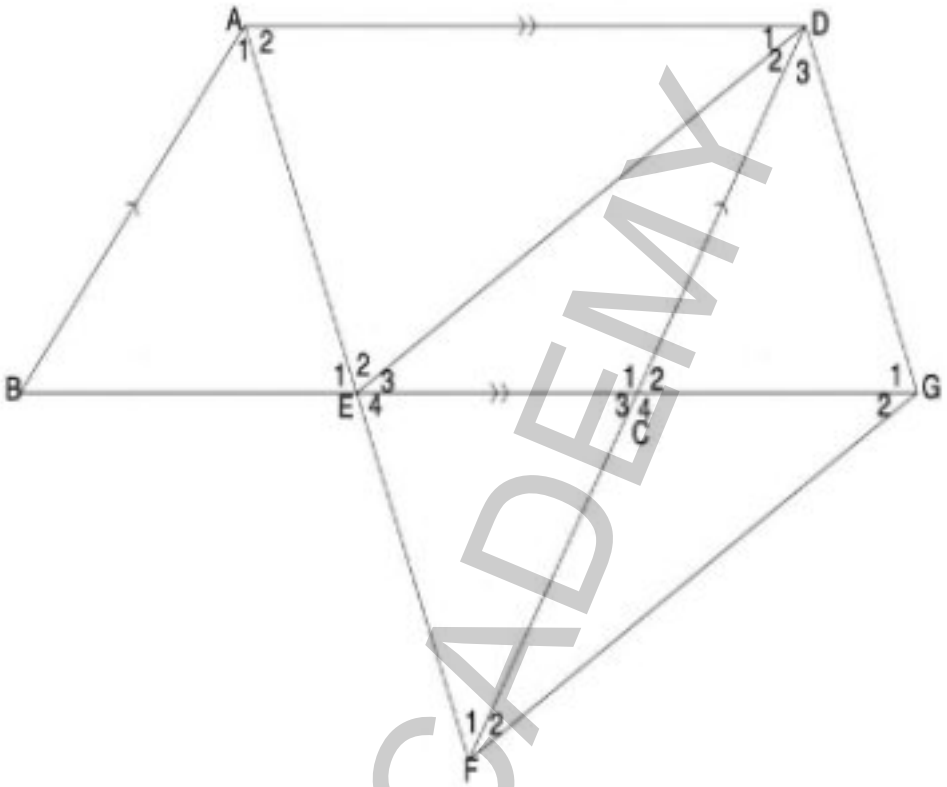
4.1	$OQ^2 + OP^2 = QP^2$ [Pyth] $a^2 + 3^2 = 5^2$ $a^2 = 16$ $a = \pm 4$ $\therefore a = -4$	✓ substitution ✓ answer (2)
4.2	$c = 3$ $m = \frac{y_2 - y_1}{x_2 - x_1}$ $= \frac{3-0}{0-(-4)}$ $= \frac{3}{4}$ $y = mx + c$ $\therefore y = \frac{3}{4}x + 3$	✓ $y-$ intercept/ $c = 3$ ✓ substitution ✓ $m = \frac{3}{4}$ ✓ answer (4)
4.3	M $\left(\frac{x_1 + x_2}{2}; \frac{y_1 + y_2}{2}\right)$ M $\left(\frac{0+0}{2}; \frac{0+3}{2}\right)$ M $(0; \frac{3}{2})$	✓ substitution for x and y ✓ answer (2)
4.4	R(4 ; 3)	✓ 4 ✓ 3 (2)

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QUESTION 5



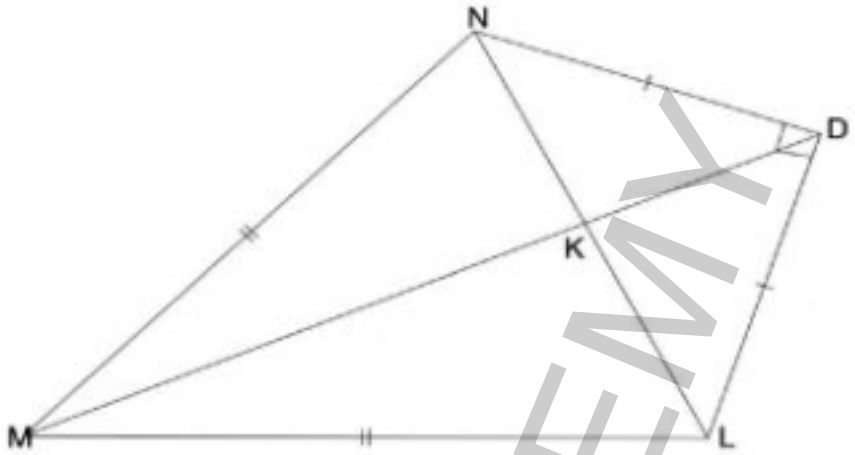
5.1	AB = EC [given] AB = BC [opp sides of a parm ABCD] ΔDCE is an isoceles [2 sides = in Δ]	✓ S/R ✓ S/R ✓ R (3)
5.2.1	A_2 = x [AE bisects BAD] E_1 = x [alt ∠'s AD∥BG] E_4 = x [corr ∠'s AB∥FD] $A\hat{F}D$ = x [alt ∠'s AB∥FD]	✓ S✓ R ✓ S✓ R ✓ S✓ R ✓ S✓ R (8)
5.2.2	$\hat{B} = 180° - 2x$ [sum of ∠'s of a Δ]	✓ S✓ R (2)

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QUESTION 6



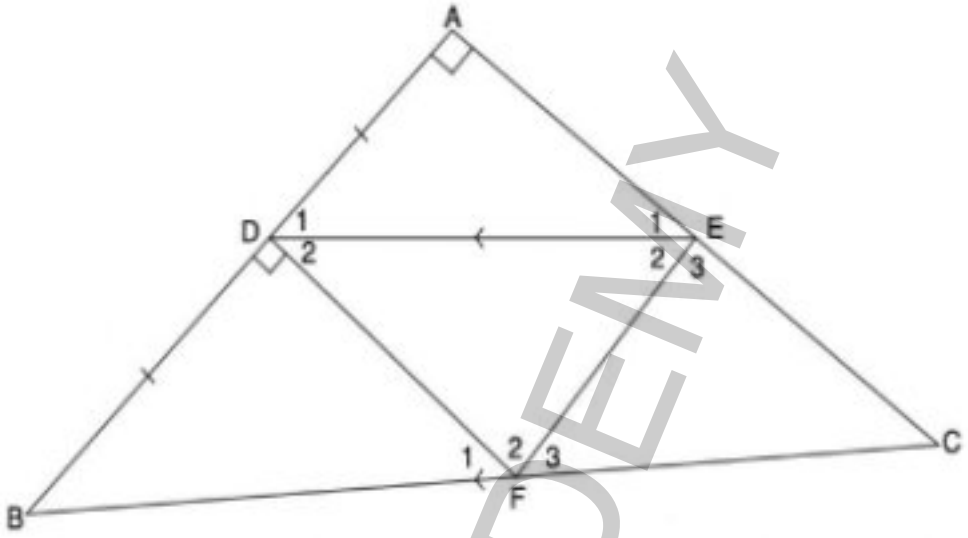
6.1	$N\hat{D}K = 45°$ [MD bisects $N\hat{D}L$] **OR** $N\hat{K}D = 90°$ [diagonals of kite] $L\hat{N}D = 45°$ [$\angle$'s opp = sides; ND = LD] $\therefore N\hat{D}K = 45°$ [Sum of $\angle$'s of a Δ NDK]	✓ S ✓ R ✓ method ✓ answer (2)
6.2	$\sin 45° = \frac{NK}{ND}$ $\sin 45° = \frac{NK}{30}$ $NK = 30\sin 45°$ $NK = \frac{30}{\sqrt{2}}$	✓$\sin 45° = \frac{NK}{30}$ ✓$NK = 30\sin 45°$ (2)
6.3	$MK = DM - DK$ $MK = 45\sqrt{2} - 15\sqrt{2} = 30\sqrt{2}$ $NM^2 = NK^2 + MK^2$ $NM^2 = (15\sqrt{2})^2 + (30\sqrt{2})^2$ $NM = 15\sqrt{10}$	✓ MK=DM–DK ✓$MK = 30\sqrt{2}$ ✓ substitution (3)

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QUESTION 7

		
7.1	DE$\parallel$BC - given AD = DB [given] AE = EC [Line through midpoint $\parallel$ to 2nd side]	✓ S ✓ SR ✓ conclusion (3)
7.2	$\hat{B}DF = \hat{D}AE$ given/corr $\angle$'s DF $\parallel$ AC	✓ S ✓ R (2)
7.3	DF $\parallel$ AC and AD = BD [proved above] $\therefore$BF= FC [Line through midpoint $\parallel$ to 2nd side]	✓ S ✓ R (2)
7.4	$\hat{D} = 60°$[$\angle$'s of Δ] AD $\neq$ AE [ADE will not be an isoceles Δ] $\therefore$ ADFE is a rectangle [opp sides = and $\parallel$, angles $= 90°$]	✓ S ✓ S ✓ R ✓ R (4)

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TOTAL: 75

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