LIMPOPO
PROVINCIAL GOVERNMENT
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DEPARTMENT OF EDUCATION

NATIONAL SENIOR CERTIFICATE

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GRADE 10

MATHEMATICS P2

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MAKING GUIDELINES

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MARKS: 50

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QUESTION 1			
1.1.1	$m_{AB}=\frac{y_2-y_1}{x_2-x_1}$ $=\frac{5-(-2)}{3-(-4)}$ $=\frac{5+2}{3+4}$ $=\frac{7}{7}$ $=1$	✓$\frac{y_2-y_1}{x_2-x_1}$ ✓$\frac{5-(-2)}{3-(-4)}$ ✓1	(3)
1.1.2	$AB=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$ $=\sqrt{(3-(-4))^2+(5-(-2))^2}$ $=\sqrt{7^2+7^2}$ $=\sqrt{98}$ $=9,99$	✓$\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$ ✓ $\sqrt{(3-(-4))^2+(5-(-2))^2}$ ✓9,99	(3)
1.1.3	$M\left(\frac{x_1+x_2}{2};\frac{y_1+y_2}{2}\right)$ $=\left(\frac{-4+3}{2};\frac{-2+5}{2}\right)$ $=\left(\frac{-1}{2};\frac{3}{2}\right)$ $=(-1,5;1,5)$	✓$M\left(\frac{x_1+x_2}{2};\frac{y_1+y_2}{2}\right)$ ✓✓$\left(\frac{-4+3}{2};\frac{-2+5}{2}\right)$ ✓$(-1,5;1,5)$	(4)
1.2.1	$x^2+y^2=r^2$ $(-3)^2+(-4)^2=r^2$ $9+16=r^2$ $r=\sqrt{25}$ $r=5$	✓$(-3)^2+(-4)^2=r^2$ ✓$r=5$	(2)
1.2.2	$\cos\theta=\frac{x}{r}=\frac{-3}{5}$ $\tan\theta=\frac{y}{x}=\frac{-4}{-3}=\frac{4}{3}$	✓$\frac{-3}{5}$ ✓$\frac{4}{3}$	(2)

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1.2.3	$\cos\theta.\tan\theta.\sec\theta$ $=\frac{-3}{5}\times\frac{4}{3}\times\frac{5}{-3}$ $=\frac{4}{3}$	✓$\frac{-3}{5}\times\frac{4}{3}\times\frac{5}{-3}$ ✓$\frac{4}{3}$	(2)
			[16]
QUESTION 2			
2.1	$\frac{3\cos 120°}{\sin 150°-\cos 80°}$ $=-4,596266659$ $=-4,60$	✓$-4,596266659$ ✓$-4,60$	(2)
2.2.1	$4\sin\theta=2,1$ $\sin\theta=\frac{2,1}{4}$ $\theta=\sin^{-1}(0,525)$ $\theta=31,66824325$ $\theta=31,7°$	✓$\sin\theta=\frac{2,1}{4}$ ✓$\theta=31,7°$	(2)
2.2.2	$\cos(\theta+15°)=0,845$ $\theta+15°=\cos^{-1}(0,845)$ $\theta+15°=32,32806412°$ $\theta=32,32806412°-15°$ $\theta=17,3°$	✓$\theta+15°=\cos^{-1}(0,845)$ ✓$\theta=17,3°$	(2)
2.3	$\sin 0°+\cos^2 60°+\sqrt{2}\cos 45°$ $=0+\left(\frac{1}{2}\right)^2+\sqrt{2}\times\frac{\sqrt{2}}{2}$ $=\frac{1}{4}+1$ $=\frac{1+4}{4}$ $=\frac{5}{4}$	✓0 ✓$\left(\frac{1}{2}\right)^2$ ✓$\frac{\sqrt{2}}{2}$ ✓$\frac{5}{4}$	(4)

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2.4	$x.\cot 60° = \dfrac{\sin 50°.\sin 30°.\cos ec50°}{\cot 45°}$ $x.\cot 60° = \dfrac{\sin 30°}{\cot 45°}$ $x.\left(\dfrac{1}{\sqrt{3}}\right) = \dfrac{\frac{1}{2}}{1}$ $x\left(\dfrac{1}{\sqrt{3}} \times \sqrt{3}\right) = \dfrac{1}{2} \times \sqrt{3}$ $x = \dfrac{\sqrt{3}}{2}$	✓ $\dfrac{1}{\sqrt{3}}$ ✓ $\dfrac{1}{2}$ ✓ 1 ✓ $\dfrac{1}{2} \times \sqrt{3}$ ✓ $\dfrac{\sqrt{3}}{2}$	(5)
			[15]
QUESTION 3			
3.1.1	$\hat{B}_1 + \hat{A} = \hat{C}_2\ (ext.\angle of\ \Delta = sum\ of\ \text{int}\ opp\ \angle s)$ $\hat{B}_1 + 40° = 100°$ $\hat{B}_1 = 100° - 40°$ $\hat{B}_1 = 60°$	✓S/R ✓ $\hat{B}_1 = 60°$	(2)
3.1.2	$\hat{B}_2 = \hat{D}_1 (\angle s\ opp = sides)$ $\hat{B}_2 + \hat{C}_2 + \hat{D}_1 = 180° (sum\ of \angle s\ of \Delta)$ $2\hat{B}_2 + 100° = 180°$ $2\hat{B}_2 = 180° - 100°$ $2\hat{B}_2 = 80°$ $\hat{B}_2 = 40°$	✓S/R ✓ $\hat{B}_2 + \hat{C}_2 + \hat{D}_1 = 180° (sum\ of \angle s\ of \Delta)$ ✓ $\hat{B}_2 = 40°$	(3)
3.2	- both pairs of opposite sides are parallel. - all sides are equal. - diagonals bisect the angles. - diagonals bisect at right angles. - both pairs of opposite angles are equal	✓✓ Any 2 properties	(2)

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3.3	$\hat{A} = \hat{C}(opp \angle s\ of //^m)$ $x + 20° = 2x - 60°$ $2x - x = 60° + 20°$ $x = 80°$ $\hat{C} = 100°$	✓S ✓ $x = 80°$ ✓ $\hat{C} = 100°$	(3)
3.4	In Δ ABC and Δ CDA $\hat{B} = \hat{D}$(given) AC is common $\hat{C}_1 = \hat{A}_2$(alt∠s =; AD//BC) ∴ ΔABC ≡ ΔCDA(∠, ∠, S) AD = BC(ΔABC ≡ ΔCDA) ∴ ABCD is a paralle log r am(oneside = //) OR *In ΔABC and ΔCDA* $\hat{B} = \hat{D}$ *(given)* *AC is common* $\hat{C}_1 = \hat{A}_2(alt \angle s; AD//BC)$ $\Delta ABC \equiv \Delta CDA(\angle, \angle, S)$ $AD = BC(\Delta ABC \equiv \Delta CDA)$ $AB = DC(\Delta ABC \equiv \Delta CDA)$ ∴ *ABCD is a paralle log r am(oppsides =)*	 ✓S✓R ✓SR ✓S ✓R ✓SR ✓R ✓S✓R ✓R	(5)
3.5	$\hat{C}_1 = 100°(opp \angle s\ of //^m)$ $\hat{C}_2 = 80°(adj \angle s\ on\ a\ str\ line\ = 180°)$ $\hat{E} = 80°(\angle s\ opp = sides)$ $\hat{D}_2 = 20°(sum\ of \angle s\ in\ a\ \Delta)$ $2x = 20°$ $x = 10°$	✓S ✓S ✓SR ✓answer	(4)
			[19]
		TOTAL = 50	

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