GAUTENG DEPARTMENT OF EDUCATION

PROVINCIAL EXAMINATION

JUNE 2017

GRADE 10

MATHEMATICS
PAPER 2

MEMORANDUM

6 pages

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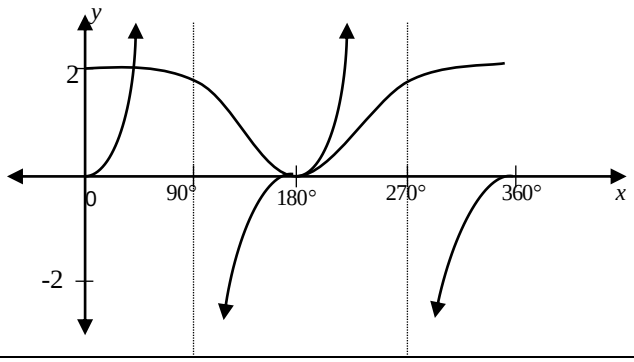
PROVINCIAL EXAMINATION

MATHEMATICS
(Paper 2)

MEMORANDUM

QUESTION 1			
1.1	$OP^2=(4)^2+(3)^2$ ……*Pythagoras* $OP^2=25$ $OP=5$		✓ $OP^2=(4)^2+(3)^2$ ✓ $OP^2=25$ ✓ $OP=5$ (3)
1.2	1.2.1	$\sin\theta$ $=\frac{3}{5}$	✓ answer (1)
	1.2.2	$\cot\theta$ $=\frac{4}{3}$	✓ answer (1)
	1.2.3	$\sin^2\theta+\cos^2\theta$ $=\left(\frac{3}{5}\right)^2+\left(\frac{4}{5}\right)^2$ $=\frac{9}{25}+\frac{16}{25}$ $=1$	✓ $\frac{4}{5}$ ✓ answer (2)
			[7]

QUESTION 2			
PENALISE JUST ONCE FOR INCORRECT ROUNDING-OFF.			
2.1	2.1.1	$3\sin 138,7°$ $=1,980$	✓ answer (1)
	2.1.2	$\sec 50°$ $=1,556$	✓ answer (1)
	2.1.3	$\frac{4\tan^2 288,2°.\cos 164,6°}{\sin 199,4°}$ $=107,402$	✓✓ answer (2)
2.2	2.2.1	$\cos 30° + \tan 60°$ $=\frac{\sqrt{3}}{2}+\sqrt{3}$ $=\frac{\sqrt{3}+2\sqrt{3}}{2}$ $=\frac{3\sqrt{3}}{2}$	✓ $\frac{\sqrt{3}}{2}$ ✓ $\sqrt{3}$ ✓ answer (3)
	2.2.2	$\frac{\sin 45°}{\cos 45°} - 5\cos ec\,90° + 3\tan^2 30°$ $=\frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} - 5(1) + 3\left(\frac{1}{\sqrt{3}}\right)^2$ $=1-5+3\left(\frac{1}{3}\right)$ $=-3$	✓ $\frac{\sin 45°}{\cos 45°}=1$ ✓ $\cos ec\,90°=1$ ✓ $\tan 30°=\frac{1}{\sqrt{3}}$ ✓ $\frac{1}{3}$ ✓ answer (5)
			[12]

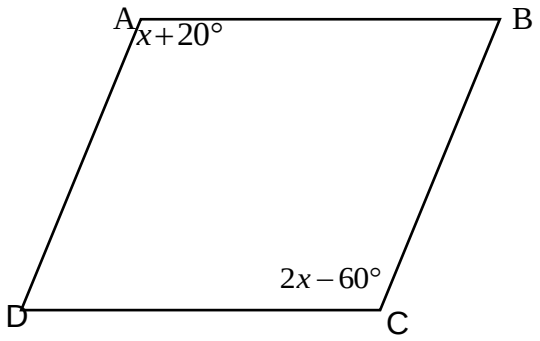
QUESTION 3			
3.1	$\tan\theta = 4{,}96$ $\theta = 78{,}60°$		✓ answer (1)
3.2	$2\sin(2\theta - 10°) = 1$ $\sin(2\theta - 10°) = \frac{1}{2}$ $(2\theta - 10°) = 30°$ $2\theta = 40°$ $\theta = 20°$		✓divide by 2 ✓ 30° ✓answer (3)
			[4]
QUESTION 4			
4.1			$f(x) = 2\tan x$ ✓ shape ✓ asymptote ✓ $(45°;2)$ $g(x) = \cos x + 1$ ✓ shape ✓ x -intercept ✓ y -intercept (6)
4.2	4.2.1	1	✓ answer (1)
	4.2.2	$180°$	✓ answer (1)
	4.2.3	$y \in [0;2]$ **OR** $0 \le y \le 2$	✓ critical values ✓ correct brackets/ inequality (2)
			[10]

QUESTION 5

5.1 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 two answers (2)

5.2



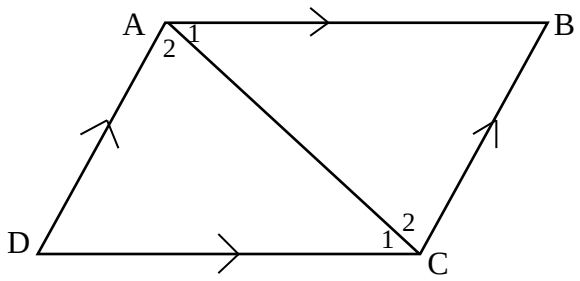
$\hat{A}=\hat{C}$	Opp angles of $//^m$
$x+20°=2x-60°$	
$x=80°$	
$\hat{C}=100°$	

✓ statement
✓ answer (2)

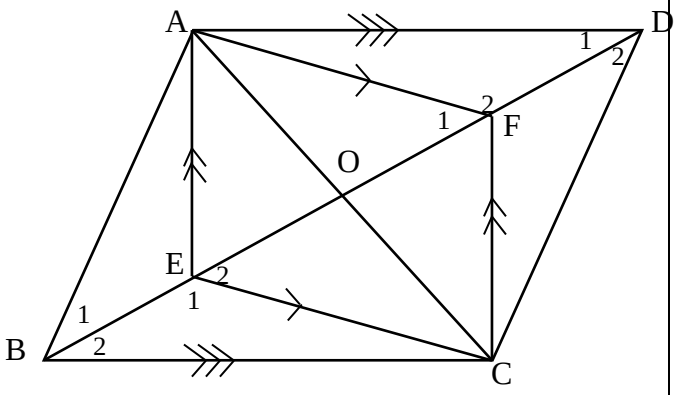
[4]

QUESTION 6

6.1



Construct diagonal AC		✓ construction
In ΔADC and ΔABC		
$AC=AC$	Common	
$\hat{A}_1=\hat{C}_1$	Alternate angles AB//DC	✓alternate angles AB//CD
$\hat{A}_2=\hat{C}_2$	Alternate angles AD//BC	✓alternate angles AD//BC
$\Delta ADC\equiv\Delta ABC$	s<<	✓ $\Delta ADC\equiv\Delta ABC$
∴ AB = DC	$\Delta ADC\equiv\Delta ABC$	✓ AB = DC AND AD = BC
∴ AD = BC	$\Delta ADC\equiv\Delta ABC$	(5)

6.2				
	6.2.1	$\hat{F}_1 = \hat{E}_2$ $\hat{F}_1 + \hat{F}_2 = \hat{E}_1 + \hat{E}_2 = 180°$ $\therefore \hat{F}_2 = \hat{E}_2$	Alternate angles AF//EC Angles on straight line	✓statement and reason ✓statement and reason ✓ $\therefore \hat{F}_2 = \hat{E}_2$ (3)
	6.2.2	In ΔAFD and ΔBEC AF = EC $\hat{D}_1 = \hat{B}_2$ $\hat{F}_2 = \hat{E}_1$ $\therefore \Delta AFD \equiv \Delta BEC$ AD = BC AB//BC ABCD is a parallelogram	Opposite sides $//^m$ Alternate angles AD//BC proved s<< $\Delta AFD \equiv \Delta BEC$ One pair of opp sides =//	✓identify correct Δ ✓ AF = EC ✓ $\therefore \Delta AFD \equiv \Delta BEC$ ✓ AD=BC ✓ reason (5)
				[13]
				TOTAL: 50