



GRADE 10 /
GRAAD 10

TERM 2 / KWARTAAL 2

MATHEMATICS / WISKUNDE

JUNE EXAMINATION / JUNIE EKSAMEN

PAPER 2 / VRAESTEL 2

MEMORANDUM

GRADE 10 /GRAAD 10

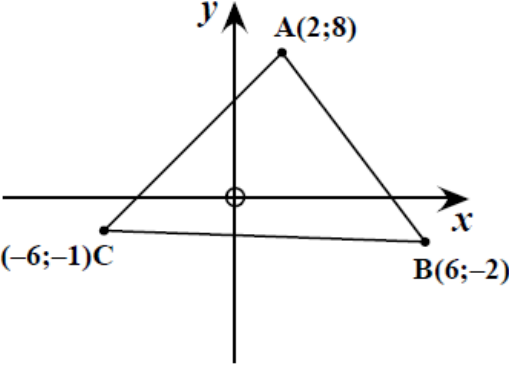
MATHEMATICS/ WISKUNDE

JUNE EXAMINATION/JUNIE EKSAMEN

PAPER 2/ VRAESTEL 2

Total/Totaal: 50 marks/Punte

MEMORANDUM

QUEST #	SOLUTION	EXPLANATION	MARKS
Question/Vraag 1 [9 marks/punte]			
			
1.1	$m_{AB} = \frac{-2-8}{6-2} = \frac{-10}{4} = -\frac{5}{2}$	✓ gradient formula ✓ correct answer	2
1.2	$M_{AB} = \left(\frac{2+6}{2}; \frac{8+(-2)}{2} \right)$ $= (4; 3)$	✓ midpoint formula ✓ correct answer	2

1.3	$AC = \sqrt{(2+6)^2 + (8+1)^2}$ $= \sqrt{64+81}$ $= \sqrt{145}$ $BC = \sqrt{(6+6)^2 + (-2+1)^2}$ $= \sqrt{144+1}$ $= \sqrt{145}$	✓ distance of AC ✓ correct answer AC ✓ distance of BC ✓ correct answer BC	4
1.4	Isosceles triangle, two equal sides.	✓ conclusion	1
Question/Vraag 2 [14 marks/punte]			
2.1	$M_x = \frac{x_1+x_2}{2} \quad M_y = \frac{y_1+y_2}{2}$ $2 = \frac{x-4}{2} \quad -1 = \frac{3+y}{2}$ $4 = x - 4 \quad -2 = 3 + y$ $x = 8 \quad y = -5$	✓ $2 = \frac{x-4}{2}$ ✓ $-1 = \frac{3+y}{2}$ ✓ $x = 8$ ✓ $y = -5$	4 TL 3
2.2	$PQ = \sqrt{(x-3)^2 + (-1-2)^2}$ $\sqrt{x^2 - 6x + 9 + 9} = \sqrt{10}$ $x^2 - 6x + 18 - 10 = 0$ $x^2 - 6x + 8 = 0$ $(x-4)(x-2) = 0$ $x = 4 \text{ or } x = 2$	✓ $\sqrt{x^2 - 6x + 9 + 9} = \sqrt{10}$ ✓ $x^2 - 6x + 18 - 10 = 0$ ✓ Standard form ✓ factorise ✓ correct answers	5 TL 3
2.3	$m_{AB} = \frac{3+2}{1+2} = \frac{5}{3}$ $m_{BC} = \frac{0-3}{6-1} = \frac{-3}{5}$ $\frac{3}{5} \times \frac{-3}{5} = -1$ $\therefore AB \perp BC$ $\therefore \Delta ABC \text{ is a right-angled triangle}$	✓ m_{AB} ✓ m_{BC} ✓ product of the gradients ✓ $AB \perp BC$ ✓ conclusion	5 TL 4

Question/Vraag 3 [7 marks/punte]			
3.1	$OP^2 = 4^2 + 3^2$ $= 16 + 9$ $OP^2 = 25$ $OP = 5$	✓Pythagoras ✓ $OP^2 = 25$ ✓correct answer	3
3.2.1	$\sin \theta = \frac{3}{5}$	✓correct answer	1
3.2.2	$\cos \theta = \frac{4}{5}$	✓correct answer	1
3.2.3	$\sin^2 \theta + \cos^2 \theta$ $= \left(\frac{3}{5}\right)^2 + \left(\frac{4}{5}\right)^2$ $= 1$	✓subst correct values ✓correct answer	2
Question/Vraag 4 [16 marks/punte]			
4.1.1	$2 \sin 137,9^\circ$ $= 1,341$	✓correct answer	1
4.1.2	$\operatorname{cosec} 34^\circ$ $= 1,788$	✓correct answer	1
4.1.3	$\frac{4 \tan^2 268,2^\circ \cdot \cos 165,4^\circ}{\sin 199^\circ}$ $= 12\,038,638$	✓correct answer	2
4.2.1	$\cos 30^\circ + \sin 60^\circ$ $= \frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2}$ $= \frac{2\sqrt{3}}{2}$ $= \sqrt{3}$	✓correct values ✓simplify ✓correct answer	3

4.2.2	$\frac{\sin 45^\circ}{\cos 45^\circ} - 5 \sin 90^\circ + 3 \tan^2 30^\circ$ $= \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} - 5(1) + 3 \left(\frac{1}{\sqrt{3}}\right)^2$ $= 1 - 5 + 3 \left(\frac{1}{3}\right)$ $= 1 - 5 + 1$ $= -5$	$\checkmark \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}}$ $\checkmark \sin 90^\circ = 1$ $\checkmark \tan^2 30^\circ = \left(\frac{1}{\sqrt{3}}\right)^2$ $\checkmark \text{simplify}$ $\checkmark \text{correct answer}$	5
4.3.1	$\tan \theta = 5,96$ $\theta = 80,48^\circ$	$\checkmark \text{correct answer}$	1
4.3.2	$2 \cos(2\theta + 10^\circ) = 1$ $\cos(2\theta + 10^\circ) = \frac{1}{2}$ $2\theta + 10^\circ = 60^\circ$ $2\theta = 50^\circ$ $\theta = 25^\circ$	$\checkmark \text{Isolate the function}$ $\checkmark \text{ref angle} = 60^\circ$ $\checkmark \text{correct answer}$	3
Question/Vraag 5 [4 marks/punte]			
5.1	Any two properties <ul style="list-style-type: none"> • Opposite sides equal • Opposite angles equal • Opposite sides parallel • Diagonals bisect • Diagonals are perpendicular • Diagonals bisect the angles. 	$\checkmark \text{any correct property}$ \checkmark	2
5.2	$x + 20 = 2x - 60^\circ \quad (\text{opp } \angle's =)$ $x = 80^\circ$ $\hat{C} = 2(80^\circ) - 60^\circ$ $= 100^\circ$	$\checkmark \text{Statement/Reason}$ $\checkmark \text{correct answer}$	2

Grade 10 Mathematics June Exam P2									
01-Jun-19									
QUESTION	THINKING LEVELS				QUEST Total	TOPICS			Total
	1	2	3	4		Analytical	Trig	Geometry	
1.1	2				9	2			2
1.2	2					2			2
1.3		4				4			4
1.4	1					1			1
2.1			4		14	4			4
2.2			5			5			5
2.3				5		5			5
3.1	3				7		3		3
3.2.1		1					1		1
3.2.2		1					1		1
3.2.3		2					2		2
4.1.1	1				16		1		1
4.1.2			1				1		1
4.1.3		2					2		2
4.2.1		3					3		3
4.2.2				5			5		5
4.3.1	1						1		1
4.3.2			3				3		3
5.1	2				4			2	2
5.2			2					2	2
									0
TOTAL	12	13	15	10	50	23	23	4	50
% TASK	24	26	30	20		46	46	8	
TARGET	20	35	30	15					
DIFFERENCE	-4	9	0	-5					