LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION
VHEMBE EAST DISTRICT



VHEMBE EAST DISTRICT

NATIONAL
SENIOR CERTIFICATE

GRADE 10

MATH MEMO P1
MID YEAR EXAMINATION
JUNE 2022

MARKS: 50

This memorandum consists of 4 pages including the cover page.

	QUESTION 1	
1.1	$25 < 33 < 36$ $25 < 33 < 36$ $5 < 33 < 6$ $\sqrt{33}$ lies between 5 and 6	✓ 25 ; 36 ✓ answer (2)
	Let $x = 0{,}45454545$ $100x = 45{,}45454545$ $100x - x = 45$ $99x = 45$ $x = \frac{45}{99}$ $= \frac{5}{11}$	✓ $100x = 45{,}45454545$ ✓ $99x = 45$ ✓ answer **(3)**
	QUESTION 2	
2.1	$\frac{(3x)^2(-2xy)^3}{2x^5y^4} = \frac{3^2x^2(-2)^3x^3y^3}{2x^5y^4}$ $= \frac{9x^{2+3-5}(-2)^3}{2y^{4-3}}$ $= \frac{9x^0(-8)}{2y}$ $= \frac{-36}{y}$	✓ exponents ✓ simplifying ✓ answer (3)
2.2.1	$6p + 40 - p^2$ $= -(p^2 - 6p - 40)$ $= -(p-10)(p+4)$	✓ $-(p^2 - 6p - 40)$ ✓ $-(p-10)$ ✓ $(p+4)$ (3)
2.2.2	$-xy - (y - x)b + b^2 = -xy - by + bx + b^2$ $= -y(x + b) + b(x + b)$ $= (x + b)(-y + b)$	✓ $-xy - by + bx + b^2$ ✓grouping ✓ $(x + b)$ ✓ $(-y + b)$ (4)
	QUESTION 3	
3.1	$\frac{x+2}{x^2-3x-4} = \frac{3}{x-4} - \frac{1}{2+2x}$ $\frac{x+2}{(x-4)(x+1)} = \frac{3}{x-4} - \frac{1}{2(x+1)}$	✓ correct factors ✓ $2(x + 2)$

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	Multiply by CD: $2(x+1)(x-4)$: $2(x+2)=2\times3(x+1)-(x-4)$ $2x+4=6x+6-x+4$ $3x=-6$ $\therefore x=-2$	✓ $6(x+1)$ ✓ $-x+4$ ✓ answer (5)
3.2	$-2\le\frac{x}{2}+1<3$ $-3\le\frac{x}{2}<2$ $-6\le x<4$  	✓ $-3\le\frac{x}{2}<2$ ✓ -6 £ $x<4$ ✓ number line (3)
3.3	Let the first number be y The other number will be y+1 ∴ y + (y+1)=83 2y+1=83 2y=82 y=41 The two numbers are 41 & 42	✓ y ✓ equation ✓ answers (3)
	QUESTION 4	
4.1	$T_1=3(1)+2=5$ $T_2=3(2)+2=8$ $T_3=3(3)+2=11$ $T_4=3(4)+2=14$ $\therefore T_n=3n+2$  	✓ method ✓ 3n ✓ 2 (3)
4.2.1	$3x-7;2x;3x+1;...$ $2x-(3x-7)=3x+1-2x$ $2x-(3x-7)=3x+1-2x$ $2x-3x+7=x+1$ $2x-3x+7=x+1$ $-2x=-6$ $-2x=-6$ $\therefore x=3$ $\therefore x=3$	✓ d values ✓ equate ✓ simplify ✓ answer (4)
4.2.2	2; 6; 10; … $T_n=4n-2$	✓ $4n-2>31$ ✓ n>8,25

	$4n-2>31$ $4n>33$ $n>8,25$ $\therefore n=9$	✓ conclusion (3)
	QUESTION 5	
5.1	$q=1$ $y=b^x+1$ $5=b^2+1$ $b^2=4$ $\therefore b=2$	✓ $q=1$ ✓ subst coordinates ✓ b=2 (3)
5.2.1	$y=-x+2$ .....(1) $y=\frac{-3}{x}$ .....(2) Substitute (1) in (2): $-x+2=\frac{-3}{x}$ $-x^2+2x=-3 \quad -x^2+2x=-3$ $x^2-2x-3=0 \quad x^2-2x-3=0$ $(x-3)(x+1)=0$ $x=3 \text{ or } x=-1$ $y=-(3)+2 \text{ or } y=-(-1)+2$ $\therefore y=-1 \text{ or } y=3$ $M(3;-1) \ \& T(-1;3)$	✓ substitutttion ✓ simplification ✓ factors ✓ x-values ✓ y-values ✓ coordinate form (6)
5.2.2	$R(2;0)$	✓ 2 ✓ 0 (2)
5.2.3	$y=-(-6)+2$ $GE=8$ $y=\frac{-3}{-6}$ $EF=\frac{1}{2}$ $\therefore GF=8-\frac{1}{2}$ $=7\frac{1}{2}$	✓ GE=8 ✓ $EF=\frac{1}{2}$ ✓ $7\frac{1}{2}$ (3)

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