KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10



MATHEMATICS P1

COMMON TEST

JUNE 2023

MARKING GUIDELINE

MARKS: **50**

This marking guideline consists of 3 pages.

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GRADE 10
Marking Guideline

QUESTION 1

1.1.1	$=6x^3-8x^2+2x-9x^2+12x-3$ $=6x^3-17x^2+14x-3$	✓simplification ✓answer	(2)
1.1.2	$=\frac{2^{2x+2}.3^{x-1}}{2^{2x-4}.3^{x-2}}$ $=2^6.3^1$ $=192$	✓2^{2x+2} ✓$2^{2x-4}.3^{x-2}$ ✓$2^6.3^1$ ✓192	(4)
1.2.1	$=(3x-5)(x+1)$	✓$(3x-5)$ ✓$(x+1)$	(2)
1.2.2	$=-xy-yb+xb+b^2$ $=-y(x+b)+b(x+b)$ $=(x+b)(b-y)$	✓simplification ✓grouping/common factor ✓answer	(3)
			[11]

QUESTION 2

2.1.1	$x^2-8x+12=0$ $(x-6)(x-2)=0$ $x=6$ or $x=2$	✓standard form ✓factors ✓both answers	(3)
2.1.2	$\frac{-(x-3)}{(x-1)(x+1)}-\frac{2x+4}{x+1}=\frac{-2x}{x-1}$ $-(x-3)-(2x+4)(x-1)=-2x(x+1)$ $-x+3-2x^2-2x+4=-2x^2-2x$ $x=7$	✓$-(x-3)$ ✓$(x-1)(x+1)$ ✓$-2x^2-2x+4$ ✓$-2x^2-2x$ ✓answer	(5)
2.1.3	$3^x\left(1-3^{-2}\right)=24$ $3^x\left(\frac{8}{9}\right)=24$ $3^x=27$ $3^x=3^3$ $x=3$	✓$3^x\left(1-3^{-2}\right)=24$ ✓$3^x=27$ ✓answer	(3)
2.1.4	$-4<\frac{x}{2}\leq 1$ $-8<x\leq 2$	✓$-4<\frac{x}{2}\leq 1$ ✓$-8<x\leq 2$	(2)

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2.2.1	$x^2+(x+1)^2=85$ $x^2+x^2+2x-84=0$ $x^2+x-42=0$ $(x+7)(x-6)=0$ $x\neq -7$ or $x=6$	✓ $x^2+(x+1)^2=85$ ✓standard form ✓ $x=6$ ✓ $x\neq -7$	(4)
			[17]

QUESTION 3

3.1.1	$f(x)=b^x+q$ through $P(-2;5)$ $b^{-2}+1=5$ $\frac{1}{b^2}=4$ $b=\frac{1}{2}$ $q=1$	✓substituting $P(-2;5)$ ✓ $\frac{1}{b^2}$ ✓value of b ✓value of q	(4)
3.2.1	$B(0;9)$ $D(0;3)$	✓ $B(0;9)$ ✓ $D(0;3)$	(2)
3.2.2	Domain: $x\in R$ Range : $y\leq 9$ or $y\in(-\infty;9]$	✓ $x\in$ or $x\in(-\infty;\infty)$ ✓ $y\leq 9$ or $y\in(-\infty;9]$	(2)
3.2.3	$-x^2+9=0$ $x=-3$ or $x=3$ $AE=6$ units	✓equating to 0 ✓ $x=3$ ✓ $x=-3$ ✓AE	(4)
3.2.4	$m=\frac{3-0}{0+3}$ $m=1$	✓substitution ✓value of m	(2)
3.2.5	$-x^2+9=x+3$ $x^2+x-6=0$ $(x+3)(x-2)=0$ $x=2$ $y=5$ $A(-3;0)$ $C(2;5)$	✓ $-x^2+9=x+3$ ✓ $(x+3)(x-2)=0$ ✓ $A(-3;0)$ ✓ $C(2;5)$	(4)
3.3.1	$-3<x<2$ or $x\in(-3;2)$	✓✓each end	(2)
3.3.2	$x\geq 3$ or $x\in[3;\infty)$	✓✓answer	(2)
			[22]
		TOTAL:	**[50]**

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