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KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10

MATHEMATICS P1

COMMON TEST

JUNE 2024

MARKING GUIDELINE

MARKS: **50**

This marking guideline consists of 5 pages.

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QUESTION 1

1.1.1	$=6x^3-12x^2+3x-4x^2+8x-2$ $=6x^3-16x^2+11x-2$	**A** simplification answer	(2)
1.1.2	$=\frac{2^{2x}.2^{3x+3}}{2^{5x+5}}$ $=2^{-2}$ $=\frac{1}{4}$	$\frac{2^{2x}.2^{3x+3}}{2^{5x+5}}$ **CA**✓ 2^{-2} **CA**✓ $\frac{1}{4}$	(3)
1.1.3	$=\frac{x+7}{(x-3)(x+2)}-\frac{3}{x-3}+\frac{2}{2(x+2)}$ $=\frac{x+7-3(x+2)+x-3}{(x-3)(x+2)}$ $=\frac{x+7-3x-6+x-3}{(x-3)(x+2)}$ $=\frac{-x-2}{(x-3)(x+2)}$ $=\frac{-(x+2)}{(x-3)(x+2)}$ $=\frac{-1}{x+3}$	$(x-3)(x+2)$ and **CA** $\frac{x+7-3(x+2)+x-3}{(x-3)(x+2)}$ **CA**✓ $-x-2$ **CA**✓ $-(x+2)$ **CA**✓ $\frac{-1}{x+3}$	(5)
1.2.1	$=(5x+3)(x-1)$	**A**✓ $(5x+3)$ **A**✓ $(x-1)$	(2)
1.2.2	$=\left(x+\frac{1}{5}\right)\left(x^2-\frac{1}{5}x+\frac{1}{25}\right)$	$\left(x+\frac{1}{5}\right)$ **A**✓ $\left(x^2-\frac{1}{5}x+\frac{1}{25}\right)$	(2)
			[14]

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QUESTION 2

2.1.1	$x^2-x-6=0$ $(x-3)(x+2)=0$ $x=3$ or $x=-2$	standard form factors **CA**✓both answers	(3)
2.1.2	$3^x\left(1+\frac{1}{3}\right)=36$ $3^x=27$ $x=3$	$3^x\left(1+\frac{1}{3}\right)=36$ $3^x=27$ $x=3$	(3)
2.1.3	$-2+1<\frac{x}{3}\leq 1+1$ $-1<\frac{x}{3}\leq 2$ $-3<x\leq 6$	$-2+1<\frac{x}{3}\leq 1+1$ $-1<\frac{x}{3}\leq 2$ $-3<x\leq 6$	(3)
2.2	Let bicycles $=x$ tricycles $=y$ $x+y=7$.....$\rightarrow(1)$ $2x+3y=19$.....$\rightarrow(2)$ $-2x-2y=-14$.....$\rightarrow(3)$ Add (2) and (3) $y=5$ $x=2$ **OR** $x+y=7$.....$\rightarrow(1)$ $2x+3y=19$.....$\rightarrow(2)$ $x=7-y$.....$\rightarrow(3)$ subst. (3) into (2) $2(7-y)+3y=19$ $14-2y+3y=19$ $y=5$ $x=2$	$x+y=7$ $2x+3y=19$ $-2x-2y=-14$ $y=5$ $x=2$ $x+y=7$ $2x+3y=19$ $x=7-y$ $y=5$ $x=2$	(5)
			[14]

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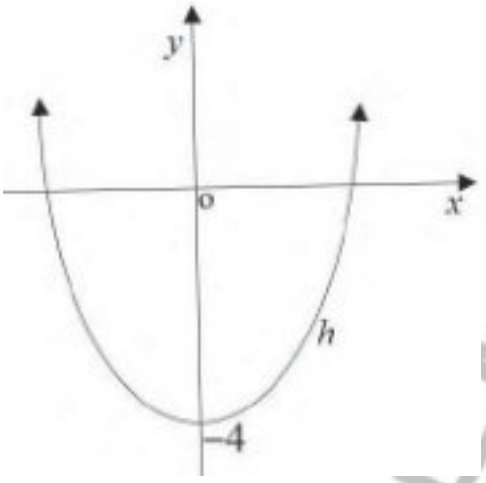
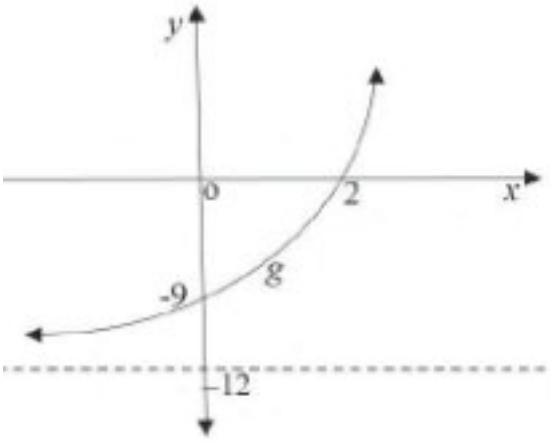
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QUESTION 3

3.1.1	$f(0)=-2$ $C(0;-2)$	**A**✓ $C(0;-2)$	(1)
3.1.2	$x-2=\frac{3}{x}$ $x^2-2x-3=0$ $(x-3)(x+1)=0$ $x=3$ or $x=-1$ $A(-1;0)$, $B(3;0)$	**A**✓ $x-2=\frac{3}{x}$ **A**✓ $x^2-2x-3=0$ **CA**✓ $(x-3)(x+1)=0$ **CA**✓ $x=3$ or $x=-1$	(4)
3.1.3	$f(6)=6-2$ $=4$ $g(6)=\frac{3}{6}$ $=\frac{1}{2}$ $\therefore$ EF=3,5 or $\frac{7}{2}$ units	**A**✓ y – value of F **A**✓ y – value of E **CA**✓ EF=3,5 or $\frac{7}{2}$ units	(3)
3.1.4	$j(x)=\frac{3}{x}+2$	**A**✓ $j(x)=\frac{3}{x}+2$	(1)
3.1.5	$-1\le x<0$ **OR** $x\in[-1;0)$	**CA**✓ $-1\le x<0$ **A**✓	(2)

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3.2		**A**✓shape **A**✓x-intercepts on either sides of the y-axis **A**✓turning point /y-intercept at $y=-4$	(3)
3.3.1	$y=-12$	**A**✓answer	(1)
3.3.2	$g(0)=-9$	**A**✓ $g(0)=3.2^{0}-12$ **A**✓ -9	(2)
3.3.3	$3.2^{x}=12$ $2^{x}=4$ $x=2$	**A**✓ $2^{x}=4$ **A**✓ $x=2$	(2)
3.3.4		**A**✓shape **CA**✓both intercepts **A**✓asymptotes	(3)
			[22]
		TOTAL:	**[50]**

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