Dr. Johan Jurgens High School
Mathematics
Grade 9
Term 1
Test Memorandum

Question 1:

<table>
<tr><td>1.1.1</td><td>Non-real ✓</td><td>✓ for answer</td><td>(1)</td></tr>
<tr><td>1.1.2</td><td>Rational ✓</td><td>✓ for answer</td><td>(1)</td></tr>
<tr><td>1.1.3</td><td>Irrational ✓</td><td>✓ for answer</td><td>(1)</td></tr>
<tr><td>1.2</td><td>13 + 14 = 27 ✓
$\frac{13}{27}$ x 54 = 26 ✓
$\frac{14}{27}$ x 54 = 28 ✓
26:28 ✓</td><td>✓ for adding ratio
✓ for calculation
✓ for calculation
✓ for answer in ration form</td><td>(4)</td></tr>
<tr><td>1.3.1</td><td>$\sqrt{16}$ + (-3 x $\sqrt{25}$)
= 4 – 15 ✓
= -11 ✓</td><td>✓ for method
✓ for answer
Mark allocation is 2 or 0</td><td>(2)</td></tr>
<tr><td>1.3.2</td><td>$\sqrt[3]{125}$ – (100 ÷ -25)
= 5 + 4 ✓
= 9 ✓</td><td>✓ for method
✓ for answer
Mark allocation is 2 or 0</td><td>(2)</td></tr>
<tr><td>1.4</td><td>= $(-1)^2$ – [(2)(-1)(2)]3 ✓
= 1 – (-4)3 ✓
= 1 – 64
= -63 ✓</td><td>✓ for substitution in brackets
✓ for calculations
✓ for answer</td><td>(3)</td></tr>
<tr><td>1.5</td><td><table><tr><td>Term No</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td></td><td>10</td><td>11✓</td></tr><tr><td>No of blocks</td><td>1</td><td>4</td><td>7</td><td>10✓</td><td>13✓</td><td></td><td>28✓</td><td>31</td></tr></table>One mark for each correct answer</td><td></td><td>(4)</td></tr>
<tr><td></td><td></td><td></td><td>[18]</td></tr>
</table>

Question 2:

2.1.1	$R15\,000\ x\ \frac{15}{100}$ ✓ = R2 250✓	✓ for correct method ✓ for answer	(2)
2.1.2	A = P(1 + i.n) A = R12 750 ✓ (CA) $(1 + \frac{10}{100}\ x\ 2)$ ✓ A = R15 300 ✓	✓ for new amount ✓ for substitution ✓ for answer	(3)
2.1.3	R15 300 ÷ 24 ✓ = R637,50 ✓ (CA)	✓ for calculation ✓ for answer	(2)
2.2	$A = P(1 + i)^n$ ✓ R5 500✓ $= P(1 + \frac{6,5}{100})^5$✓ P = $\frac{R5\,500}{(1+\frac{6,5}{100})^5}$✓ P = R4 014,34 ✓	✓ for formula ✓✓ for correct substitution ✓ for method ✓ for answer	(5)
2.3	$\frac{3}{4} : 1\frac{1}{2} : \frac{1}{3}$ $\frac{3}{4} : \frac{3}{2} : \frac{1}{3}$ ✓✓ $9 : 18 : 4$ ✓✓	✓✓ for conversion of fractions (2 or 0) ✓ for simplified values ✓ for ratio answer	(4)
2.4	$\frac{16,5l}{100km} = \frac{xl}{1284km}$ ✓ $100x = 21186$ ✓ $x = 211,86$ ✓	✓ for method ✓ for calculation ✓ for answer	(3)
			[19]

Question 3:

3.1.1	$7^{-2} \cdot 7^3 \cdot 7^1$ $= 7^{-2+3+1}$ $= 7^2$ ✓ $=49$ ✓	✓ for method ✓ for answer	(2)
3.1.2	$\frac{2^2 \times 2^3 \times 2^3}{2^{10}}$ $= \frac{2^8}{2^{10}}$ ✓ $= \frac{1}{2^2}$ ✓ $= \frac{1}{4}$ ✓	✓ using exponent laws correctly ✓ for method ✓ for answer	(3)
3.1.3	$\frac{a^4b^3 \times a^3b^{-6}}{a^2b^3}$ $= \frac{a^7 b^{-3}}{a^2b^3}$ $= \frac{a^{7-2}}{b^{3+3}}$ ✓✓ $= \frac{a^5}{b^6}$ ✓	✓ using exponent laws correctly ✓ for method ✓ for answer	(3)
3.1.4	$\frac{(3a^2b)(3a^6b^3)^0}{3a^2b^{-3}}$ $= \frac{(3a^2b)(1)}{3a^2b^{-3}}$ ✓✓ $= \frac{(3a^2b)b^3}{3a^2}$ $= b^4$ ✓	✓ using exponent laws correctly ✓ for method ✓ for answer	(3)
3.1.5	$3^n = \frac{1}{81}$ $3^n = 3^{-4}$ ✓ $n = -4$ ✓	✓ for method ✓ for answer	(2)
			[13]

Total: 50 Marks

Questions	Level 1 Knowledge	Level 2 Routine	Level 3 Complex	Level 4 Problem solving	Total
	25%	35%	30%	10%	100%
Question 1					18
1.1.1	1				
1.1.2	1				
1.1.3	1				
1.2	4				
1.3.1		2			
1.3.2		2			
1.4		3			
1.5		4			
Question 2					19
2.1.1		2			
2.1.2		3			
2.1.3		2			
2.2				5	
2.3			4		
2.4			3		
Question 3					13
3.1.1	2				
3.1.2		3			
3.1.3			3		
3.1.4			3		
3.1.5	2				
Total	11	21	13	5	50
Total %	22%	42%	26%	10%	100%