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**MATHEMATICS****MARCH 2023****GRADE 9****1 HOUR****TEST****50 MARKS**

MARKING GUIDELINE

This marking guideline consists of 5 pages

QUESTION 1	SOLUTIONS	MARK ALLOCATION	
1.1	D An irrational number ✓		(1)
1.2.	C 864 ✓		(1)
1.3	D 315 km ✓		(1)
1.4	D - 34 ✓		(1)
1.5	B a^9 ✓		(1)
1.6	C 23 ✓		(1)
			6 marks

QUESTION 2	SOLUTIONS	MARK ALLOCATION	
2.1.1	Rational	Rational ✓	(1)
2.1.2	Irrational	Irrational ✓	(1)
2.1.3	Rational	Rational ✓	(1)
2.2			
2.2.1	$135 = 3 \times 3 \times 3 \times 5$	$135 = 3 \times 3 \times 3 \times 5$ ✓	(1)
2.2.2	$225 = 3 \times 3 \times 5 \times 5$	$225 = 3 \times 3 \times 5 \times 5$ ✓	(1)
2.2.3	$315 = 3 \times 3 \times 5 \times 7$	$315 = 3 \times 3 \times 5 \times 7$ ✓	(1)
2.2.4	$ \begin{array}{l} 135 = 3 \times 3 \times 3 \times 5 \\ 225 = 3 \times 3 \times 5 \times 5 \\ 315 = 3 \times 3 \times 5 \times 7 \end{array} $ $\therefore \text{HCF} = 3 \times 3 \times 5$ $= 45$	HCF = 45 ✓	(1)
	TOTAL		7 marks

QUESTION 3	SOLUTIONS	MARK ALLOCATION	
3.1	$= \frac{5}{3} \times 12$ $= 20$ OR $3 : 5 = 12 : x$ $\frac{3}{5} = \frac{12}{x}$ $3x = 60$ $\therefore x = 20$	$= \frac{5}{3} \times 12$ ✓ $= 20$ ✓ OR $\frac{3}{5} = \frac{12}{x}$ ✓ $x = 20$ ✓	(2)
3.2	3 kg of potatoes cost R24 1kg will cost $\frac{24}{3}$ $= R8$ $\therefore 7\text{kg will cost } 7 \times R8$ $= R56$ OR Cost of 3kg = $\frac{7 \times 24}{3}$	Cost per unit (R8) ✓ $R56$ ✓ OR Simplifying: $\frac{7 \times 24}{3}$ ✓	(2)

	$= R56$	$R56$ ✓	
3.3	Distance travelled by car = $100 \text{ km/h} \times 6 \text{ h}$ $= 600 \text{ km}$ Distance travelled by air = $1200 \text{ km} - 600 \text{ km}$ $= 600 \text{ km}$ $t = \frac{d}{s}$ $t = \frac{600 \text{ km}}{300 \text{ km/h}}$ $\therefore t = 2 \text{ hours}$ She travelled 2 hours by air.	Distance travelled by car 600 km ✓ Distance travelled by air 600 km ✓ Substitution $\frac{600 \text{ km}}{300 \text{ km/h}}$ ✓ Answer 2 hours ✓	(4)
	TOTAL		8 marks

QUESTION 4	SOLUTIONS	MARK ALLOCATION	
4.1	$A = P(1 + i)^n$ $= 20\,000(1 + 0,12)^{10}$ $= 20\,000(1,12)^{10}$ $= R62\,116,96$	Substitution ✓ Simplifying ✓ $R62\,116,96$ ✓	(3)
4.2	He first 500 km are free. $\therefore 850 - 500 = 350 \text{ km}$ Total cost = $5 \times 175 + 2 \times 350$ $= R1\,575$	350 km ✓ $5 \times 175 + 2 \times 350$ ✓ $R1\,575$ ✓	(3)
	TOTAL	8 marks	6 marks

QUESTION 5	SOLUTIONS	MARK ALLOCATION	
5.1.1	$-6 + 4 - 23$ $= -2 - 23$ $= -25$ OR $-29 + 4$ $= -25$	NB: Learners must show the calculations: Allocate 1 mark if only answer written. $-2 - 23$ ✓ -25 ✓ OR	(2)

		$-29 + 4$ ✓ -25 ✓	
5.1.2	$11 - [-3 + 2 - (-1)]$ $= 11 - (-1 + 1)$ $= 11 - 0$ $= 11$ OR $= 11 - (-3 + 2 + 1)$ $= 11 - 0$ $= 11$	$11 - (-1 + 1)$ ✓ $= 11 + 0$ ✓ $= 11$ ✓ OR $11 - (-3 + 2 + 1)$ ✓ $11 - 0$ ✓ 11 ✓	(2)
5.1.3	$4 \times (-28)$ $= -112$	Answer -112 ✓	(1)
5.1.4	$\sqrt{\sqrt{36} - \sqrt{4}}$ $= \sqrt{6 - 2}$ $= \sqrt{4}$ $= 2$	$\sqrt{6 - 2}$ ✓ $\sqrt{4}$ ✓ 2 ✓	(3)
	TOTAL		8 marks

QUESTION 6	SOLUTIONS	MARK ALLOCATION	
6.1.1	$x^4 \times x^7$ $= x^{11}$	x^{11} ✓	(1)
6.1.2	$(4x)^0$ $= 1$	1 ✓	(1)
6.1.3	$\frac{3a^{-2}b \times 24b^{-1}a^{-1}}{9a^{-4}b^{-3}}$ $= \frac{3 \times 24 a^{-2+(-1)-(-4)} b^{1+(-1)-(-3)}}{9}$ $= \frac{72 ab^3}{9}$ $= 8ab^3$	72 ✓ $a^{-2+(-1)-(-4)}$ ✓ $b^{1+(-1)-(-3)}$ ✓ $8ab^3$ ✓	(4)

6.1.4	$\frac{2^{n+2}}{2^{n-1}}$ $2^{n+2-n+1}$ 2^3 $= 8$	$2^{n+2-n+1}$ ✓ 2^3 or 8 ✓	
	TOTAL		8 marks

QUESTION 7	SOLUTIONS	MARK ALLOCATION	
7.1	5; 7; 9; 11;		
7.1.1	13; 15	13 ✓ 15 ✓	(2)
7.1.2	$T_n = 2n + 3$	$2n$ ✓ $+3$ ✓	(2)
7.1.3	$T_{100} = 2(100) + 3$ $= 203$	$2(100)$ ✓ 203 ✓	(2)
	TOTAL		6 marks
GRAND TOTAL		50 Marks	