

MOTHEO EDUCATION DISTRICT

MARKING GUIDELINES

GRADE 9

MATHEMATICS

MARCH TEST 2024

TOTAL MARKS: 50

DURATION: 1 HOUR

NOTE:

- If a learner answers a question TWICE, only mark the FIRST attempt.
- If a learner has crossed out an attempt of a question and not redone the question, mark the crossed-out version.
- Consistent accuracy applies in ALL aspects of the marking guidelines. Stop marking at the second calculation error.
- Assuming answers/values to solve a problem is NOT acceptable.

Marking Guidelines

QUESTION 1			
1.1	Consider the following numbers: 4; -9; $\sqrt{125}$; $\frac{7}{8}$; π ; $\sqrt[3]{64}$		
1.1.1	Write down all the rational numbers from the list above. 4; -9; $\sqrt{125}$; $\frac{7}{8}$ and $\sqrt[3]{64}$	✓ answer	(1)
1.1.2	Write down all the whole numbers from the list above. 4; $\sqrt{125}$; and $\sqrt[3]{64}$	✓ answer	(1)
1.2	Consider the numbers 160 and 400		
1.2.1	Write each number as a product of its prime factors. $160 = 2^5 \times 5$ $400 = 2^4 \times 5^2$	✓ $160 = 2^5 \times 5$ ✓ $400 = 2^4 \times 5^2$	(2)
1.2.2	Determine the HCF of 160 and 400 $HCF = 2^4 \times 5 = 80$	✓ answer	(1)
1.2.3	Determine the LCM of 160 and 400 $LCM = 2^5 \times 5^2 = 800$	✓ answer	(1)
1.3	The price of a litre of milk increased from R15 to R18. Calculate the percentage increase. $R18 - R15 = R3$ $\therefore \frac{R3}{R15} \times 100 = 20\%$	✓ method ✓ answer	(2)
1.4	Between which two consecutive integers does $\sqrt[3]{85}$ lie? $\sqrt[3]{64} < \sqrt[3]{85} < \sqrt[3]{125}$ $\therefore 4 < \sqrt[3]{85} < 5$	✓ $\sqrt[3]{64} < \sqrt[3]{85} < \sqrt[3]{125}$ ✓ answer	(2)
1.5	Decrease 36 in the ratio 5:6 $36 \times \frac{5}{6} = 30$	✓ method ✓ answer	(2)
			[12]

Marking Guidelines

QUESTION 2			
2.1	Express the ratio 16: 40: 48 in its simplest form. 2:5:6	✓ answer	(1)
2.2	Nelson has 80 marbles. The ratio of green to blue marbles is 1:4.		
2.2.1	How many blue marbles does he have? $1 + 4 = 5$ $\therefore \text{Blue marbles} = 80 \times \frac{4}{5}$ $= 64$	✓ sum of parts ✓ $80 \times \frac{4}{5}$ ✓ answer	(3)
2.2.2	What fraction of marbles are green? $\frac{1}{5}$	✓ answer	(1)
2.2.3	What percentage of the marbles are blue? $\frac{4}{5} \times 100 = 80\%$	✓ answer	(1)
2.3	The distance from Bloemfontein to Ladybrand is 130 kilometres. A car travels this distance in 1 hours 24 minutes. Calculate the average speed of the car (round off your answer to the nearest tenth). $24 \text{ min} \div 60 \text{ min} = 0,4h$ $\therefore \text{Time in hours} = 1,4h$ $\therefore S = \frac{130km}{1,4h}$ $= 92,9km/h$	✓ time in hours = 1,4h ✓ $S = \frac{130km}{1,4h}$ ✓ answer	(3)
2.4	If 8 workers can paint a house in 6 hours, how many workers would be required to paint the same house in 4 hours? $4 \times x = 8 \times 6$ $4x = 48$ $x = 12$ $\therefore 12 \text{ workers would be required}$	✓ method ✓ answer	(2)
2.5	You invest R2500 in bank offering 6% per annum compound interest for 5 years. Calculate the value of your investment at the end of 5 years. $A = P(1+i)^n$ $= 2500 \left(1 + \frac{6}{100}\right)^5$ $= R3345,56$	✓ $A = P(1+i)^n$ ✓ $2500 \left(1 + \frac{6}{100}\right)^4$ ✓ answer	(3)
			[14]

Marking Guidelines

QUESTION 3			
	WITHOUT THE USE OF A CALCULATOR , calculate the value of:		
3.1	$1 - 2 \times 3$ $= 1 - 6$ $= -5$	✓ -6 ✓ answer	(2)
3.2	$\sqrt{16} + 2^3$ $= 4 + 8$ $= 12$	✓ 4 ✓ 8 ✓ answer	(3)
3.3	$\left[\frac{-12}{-3} \times (-2)^2 \right] + \sqrt[3]{11+16}$ $= [4 \times 4] + \sqrt[3]{27}$ $= 16 + 3$ $= 19$	✓ 4 ✓ 4 ✓ $\sqrt[3]{27}$ ✓ $16 + 3$ ✓ answer	(5)
			[10]
QUESTION 4			
4.1	Express 0,00504 in scientific notation $5,04 \times 10^{-3}$	✓ answer	(1)
4.2	Express $3,2 \times 10^{-5}$ in standard notation 0,000032	✓ answer	(1)
4.3	Simplify the following fully. Leave your answer in positive exponential form.		
4.3.1	$3x^2 \times 2x^3$ $= 6x^5$	✓ 6 ✓ x^5	(2)
4.3.2	$\frac{9y^9}{3y^3}$ $= 3y^6$	✓ 3 ✓ y^6	(2)
4.3.3	$(-3m^5)^2$ $= 9m^{10}$	✓ 9 ✓ m^{10}	(2)
4.3.4	$\sqrt[3]{8k^{12}}$ $= 2k^4$	✓ 2 ✓ k^4	(2)

Marking Guidelines

4.3.5	$x(x^{-1} + x^{-3})$ $= x^0 + x^{-2}$ $= 1 + \frac{1}{x^2}$ <i>or</i> $= x\left(\frac{1}{x} + \frac{1}{x^3}\right)$ $= x\left(\frac{x^2 + 1}{x^3}\right)$ $= \frac{x^2 + 1}{x^2}$	$\checkmark x^0$ $\checkmark x^{-2}$ $\checkmark 1$ $\checkmark \frac{1}{x^2}$ <i>or</i> $\checkmark \frac{1}{x}$ $\checkmark \frac{1}{x^3}$ $\checkmark \frac{x^2 + 1}{x^3}$ $\checkmark \frac{x^2 + 1}{x^2}$	(4)
			[14]
GRAND TOTAL: [50]			