GRADE 8 – MATHS PAPER 1

MEMORANDUM

11 NOVEMBER 2024

QUESTION 1: Multiple Choice

1.1.	A	• accuracy	(1)
1.2.	A	• accuracy	(1)
1.3.	C	• accuracy	(1)
1.4.	D	• accuracy	(1)
1.5.	A	• accuracy	(1)
1.6.	A	• accuracy	(1)
1.7.	B	• accuracy	(1)
1.8.	A	• accuracy	(1)
1.9.	B	• accuracy	(1)
1.10.	D	• accuracy	(1)

QUESTION 2: Functions and Graphs

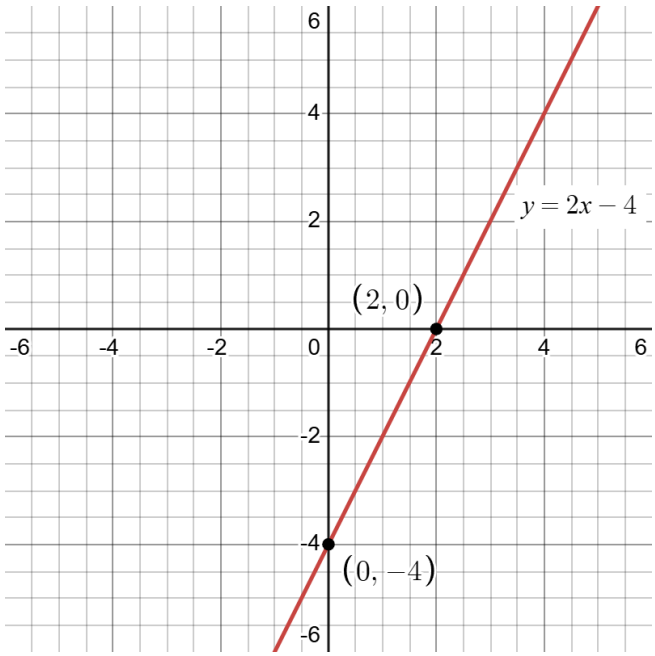
2.1.1.

x	-2	0	**2**	2	**14**
y	**-8**	**-4**	0	**0**	24

- first four values
- (14; 24)

(2)

2.1.2.



- x-int (C.A.)
- y-int (C.A.)
- shape/accuracy
- label or coordinates

(4)

[6]

QUESTION 3: Numbers, Operations and Relations

3.1.	3.1.1.	$\frac{3}{4} > \frac{9}{15}$	• greater than	(1)
	3.1.2.	$-5{,}12 < -2{,}15$	• less than	(1)
3.2.	3.2.1.	120 $= 2 \times 60$ $= 2 \times 2 \times 30$ $= 2 \times 2 \times 2 \times 15$ $= 2 \times 2 \times 2 \times 3 \times 5$ $= 2^3 \times 3 \times 5$	• any acceptable method • $2 \times 2 \times 2 \times 3 \times 5$ • Exponential form (C.A)	(3)
	3.2.2.	$120 = 2^3 \times 3 \times 5$ $\therefore 120k = 2^4 \times 3^2 \times 5^2$ $\therefore k = 2 \times 3 \times 5$ $= 30$	• 2 (C.A) • 3×5 (C.A)	(2)
3.3.	3.3.1.	$-5 + 3 \times (2^3 - 14)$ $= -5 + 3 \times (8 - 14)$ $= -5 + 3 \times (-6)$ $= -5 - 18$ $= -23$	• $2^3 = 8$ • -6 (C.A) • -18 (C.A) • -23 (C.A)	(4)
	3.3.2.	$\frac{2^0}{3} + \frac{14}{\sqrt{49}}$ $= \frac{1}{3} + \frac{14}{7}$ $= \frac{1}{3} + 2$ $= \frac{1}{3} + \frac{6}{3}$ $= \frac{7}{3}$	• $2^0 = 1$ • $\sqrt{49} = 7$ • $\frac{14}{7} = 2$ • $\frac{7}{3}$ (C.A) (also accept mixed number of $2\frac{1}{3}$)	(4)
3.4.	3.4.1.	$2 : (2 + 3 + 1)$ $= 2 : 6$ $= 1 : 3$	• 6 (total amount) • $1 : 3$	(2)
	3.4.2.	$2 : 3 : 1$ mix, having costs of 30:20:15 $2 \times 30 = 60$ for strawberries $3 \times 20 = 60$ for blueberries $1 \times 15 = 30$ for kiwis $\therefore$ strawberries and blueberries	• multiplication • strawberries and blueberries	(2)

3.5.	3.5.1.	$\frac{240\text{km}}{80\text{km/h}} = 3 \text{ hours}$	• 3 hours	(1)
	3.5.2.	$\frac{240\text{km}}{20\text{km}} = 12 \text{ stops}$ $12 \text{ stops} \times 3 \text{ minutes} = 36 \text{ minutes}$ Total time = 3 hours and 36 minutes	• 12 stops • 36 minutes (additional time) • 3 hours and 36 minutes	(3)
	3.5.3.	3 hours 36 min $\Rightarrow$ 216 minutes 3 hours $\Rightarrow$ 180 minutes $\therefore \frac{216}{180} = 120\%$	• Conversion to minutes (C.A) • 120% (C.A)	(2)
3.6.	**One tap** fills a whole tank in 12 minutes, therefore **four taps** will fill it in 3 minutes. **OR** Four taps fill **half a tank** in $\frac{6}{4}$ minutes, therefore they fill the **whole tank** in $2\left(\frac{6}{4}\right) = 3$ minutes.		• rate conversion • 3 minutes • rate conversion • 3 minutes	(2)
				[27]

QUESTION 4: Algebraic Expressions

4.1.	4.1.1.	$-4x + 9y - x - 2y$ $= -5x + 7y$	• $-5x$ • $+7y$	(2)
	4.1.2.	$-4a^3 \times 3a^2b^4$ $= -12a^5b^4$	• -12 • a^5b^4	(2)
	4.1.3.	$\frac{(2x^4)^2}{2(x^2)^3}$ $= \frac{4x^8}{2x^6}$ $= 2x^2$	• 4 • x^8 • x^6 • $2x^2$ (C.A)	(4)
4.2.	$2(a-4b) - (a+2b)$ $= 2a - 8b - a - 2b$ $= a - 10b$ Subtract $a + 2b$ from twice the value of $a - 4b$.		• $2a - 8b$ • $-a - 2b$ • $a - 10b$ (C.A)	(3)
				[11]

QUESTION 5: Algebraic Equations

5.1.	5.1.1.	$x+3=-10$ $x=-13$	• $x=-13$	(1)
	5.1.2.	$2(4+3x)=20$ $8+6x=20$ $6x=12$ $x=2$	• distribution • simplify like terms • $x=2$ (C.A)	(3)
	5.1.3.	$8-3(x-7)=x+5$ $8-3x+21=x+5$ $-3x+29=x+5$ $-4x=-24$ $x=6$	• $-3x$ (distribution) • $+21$ (distribution) • Simplify like terms • $x=6$ (C.A)	(4)
5.2.	LHS: $4x+1$ $=4\left(-\frac{1}{2}\right)+1$ $=-2+1$ $=-1$ RHS: $2(x-1)+2$ $=2\left(-\frac{1}{2}-1\right)+2$ $=2\left(-\frac{3}{2}\right)+2$ $=-1$ LHS = RHS $\therefore x=-\frac{1}{2}$ is a solution to the equation		• substitution • isolated LHS and RHS • conclusion *(substitute into equation: 1/3 max)* *(solve equation: full marks)*	(3)
5.3.	5.3.1.	Sale Price $=3(\text{R}150-\text{R}20)+\text{R}10$ $=3(\text{R}130)+\text{R}10$ $=\text{R}390+\text{R}10$ $=\text{R}400$ What is the sale price of three novels after this discount for members?	• R130 (initial subtraction) • R400 (accuracy) *(Answer only: 2/2)*	(2)
	5.3.2.	$y=130x+10$	• $130x$ • $+10$	(2)
	5.3.3.	$790=130x+10$ $780=130x$ $x=6$	• $y=\text{R}790$ • Simplify (C.A) • $x=6$ (C.A)	(3)

5.4.	The difference between the first two heights is equivalent to 3 stacked cups. $\therefore 3d = 34 - 19$ $3d = 15$ $d = 5$ Taking this distance away from the height in the second image, gives us the height of a single cup: $\therefore h = 19 - 5$ $h = 14\,(\text{cm})$	• Subtracting heights • $d = 5$ (single difference) • 14 cm	(3)
			[21]

TOTAL: 75 marks