



Province of the
EASTERN CAPE
EDUCATION

O.R.TAMBO INLAND DISTRICT

SENIOR PHASE

GRADE 9

NOVEMBER 2023

MATHEMATICS

PAPER 1

MARKING GUIDELINE

MARKS: 75

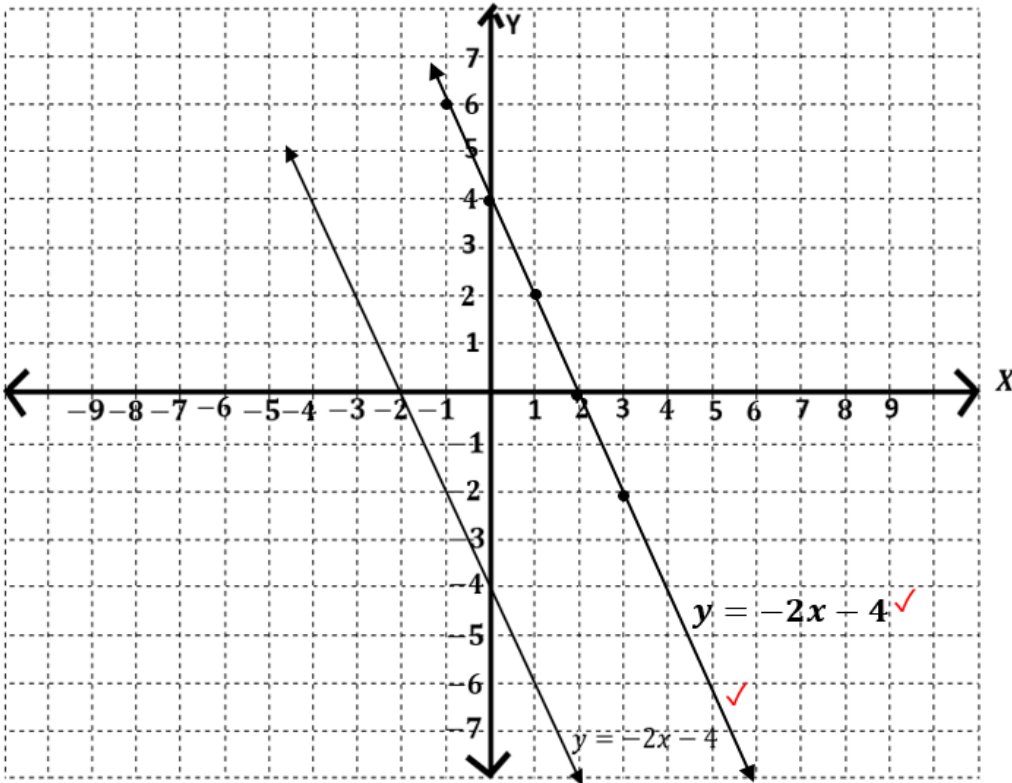
This marking guideline consists of 5 pages.

QUES No.	SOLUTION	Total
	QUESTION 1	
1.1	B ✓	(1)
1.2	C ✓	(1)
1.3	C ✓	(1)
1.4	D ✓	(1)
1.5	C ✓	(1)
1.6	D ✓	(1)
1.7	C ✓	(1)
1.8	B ✓	(1)
1.9	D ✓	(1)
1.10	B ✓	(1)
		[10]
	QUESTION 2	
2.1		
	2.1.1 $360 = 2 \times 2 \times 3 \times 3 \times 3 \times 5$ $780 = 2 \times 2 \times 3 \times 5 \times 13$ $\therefore$ The HCF of 360 and 780 is $2 \times 2 \times 3 \times 5 = 60$ ✓	(2)
	2.1.2 Direct. As the time goes up, the number of apples collected increases. ✓	(1)
	2.1.3 Phiko takes a bus to school. The school is 9 km from his home. If the bus travels at an average speed of 40km/h, how many minutes does he take to get to school? $t = \frac{d}{s}$ ✓ $= \frac{9km}{40km/h}$ $= 0,225/h \times 60 \text{ minutes}$ ✓ $t = 13,5 \text{ minutes}$ ✓	(3)
	2.1.4 Liya invests R15 000 in his savings account at 16% per annum compound interest. Calculate how much interest there will be in his savings account after 3 years $A = P \left(1 + \frac{r}{100}\right)^n$ ✓ $= 15\,000 \left(1 + \frac{r}{100}\right)^3$ $= 15\,000(1,56)$ $A = 23\,413,44$ ✓ $i = 23\,413,44 - 15\,000$ $i = 8\,413,44$ ✓	(3)
2.2	2.2.1 $1 \times 1 + 1 = 2$ $2 \times 2 + 1 = 5$ Square the position of a number and add 1. ✓	(1)

	2.2.2	$10 \times 10 + 1 \checkmark = 101 \checkmark$	(2)
2.3			
	2.3.1		(1)
	2.3.2	$5 \times 1 + 2 = 7$ $5 \times 2 + 2 = 12$ $5 \times 3 + 2 = 17$ $\therefore T_n = 5n \checkmark + 2 \checkmark$	(2)
	2.3.3		
	(i)	$5 \times 5 + 2 = 27$	(2)
	(ii)	$5n + 2 = 62 \checkmark$ $5n = 60$ $n = 12 \checkmark$	
2.4		Determine the value of $216 \div 27$ in an exponential form. $= 2^3 \times 3^3 \div 3^3 \checkmark$ $= 2^3 \times 3^{3-3}$ $= 2^3 \times 1$ $\therefore 216 \div 27 = 2^3 \checkmark$	(2)
2.5			
	2.5.1	$\frac{(2d^2e)^2}{(4d^{-3}e^{-2})^{-1}}$ $\frac{4d^4e^2 \checkmark}{4d^3e^2 \checkmark} = d \times e^0$ $= d \checkmark$	(3)
	2.5.2	$\frac{15^x \times 3^{x+1} \times 25^x}{9^{x+1} \times 125^x}$ $= \frac{3^x \times 5^x \times 3^{x+1} \times 5^{2x} \checkmark}{3^{2x+2} \times 5^{3x} \checkmark}$ $= 3^{x+x+1} \times 5^{x+2x} \div 3^{2x+2} \times 5^{3x}$ $= 3^{-1} \times 5^0$ $= 3^{-1} \text{ or } \frac{1}{3} \checkmark$	(3)
	2.5.3	$\sqrt[3]{(20x - 15x)^3}$ $= \sqrt[3]{5x^3} \checkmark$ $= 5x \checkmark$	or $= 20x - 15x \checkmark$ $= 5x \checkmark$ (2)

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	$2.5.4 \quad -2(x+1)(x+2) + 2(x+2)^2$ $= -2(x^2 + 3x + 2) \checkmark + 2(x^2 + 4x + 4) \checkmark$ $= -2x^2 - 6x - 4 + 2x^2 + 8x + 8$ $= 2x \checkmark + 4 \checkmark$	(4)
	2.5.5	
	$\frac{y^2-1}{y^2-y-2} \times (2y-4)$ $= \frac{(y-1)(y+1) \checkmark}{(y-2)(y+1) \checkmark} \times 2(y-2) \checkmark$ $= 2(y-1) \checkmark$	(3)
2.6		
	$2.6.1 \quad x^2 + 5x + 6$ $= (x-3) \checkmark (x-2) \checkmark$	(2)
	$2.6.2 \quad 3x^2 - 27$ $= 3(x^2 - 9) \checkmark$ $= 3(x-3) \checkmark (x+3) \checkmark$	(3)
2.7	Mrs G has 12 children. Each child needs 36 crayons. How many crayons must she buy? $36 \times 12 \checkmark = 432$ Mrs G must buy 432 crayons. $\checkmark$	(2)
2.8	If $y = 2x^2 + 4x + 3$, determine the value of y when $x = -2$. $y = 2(-2)^2 + 4(-2) + 3$ $y = 8 - 8 + 3 \checkmark \checkmark$ $y = 3 \checkmark$ 1 mark : 8 and 1 mark: -8	(3)
2.9		
	$2.9.1 \quad 2^{2x-2} = \frac{1}{64}$ $2^{2x-2} = 64^{-1}$ $2^{2x-2} = 2^{-6} \checkmark$ $2x - 2 = -6$ $2x = -4 \checkmark$ $\therefore x = -2 \checkmark$	(3)
	$2.9.2 \quad \frac{2x}{5} + 1 = \frac{13}{5}$ $\frac{2x+5}{5} = \frac{13}{5} \checkmark$ $5(2x+5) = 5 \times 13 \checkmark$ $10x + 25 = 65 \checkmark$ $10x = 40$ $\therefore x = 4 \checkmark$	(4)
		[52]

QUESTION 3		
3.1		
	3.1.1 + 4 ✓	(1)
	3.1.2 4 ✓✓	(2)
	3.1.3 -5 ✓✓	(2)
3.2		
	3.2.1 	(2)
	3.2.2 x – intercept is $(2 ; 0)$ ✓ y – intercept is $(0 ; 4)$ ✓	(2)
	3.2.3 The gradients are parallel ✓ because they are equidistant from each other. ✓	(2)
3.3		
	3.3.1 Graph AB is $y = x$ ✓	(1)
	3.3.2 Graph CD is $x = -2$ ✓	(1)
		[13]

END