



education

Department:
Education
PROVINCE OF KWAZULU-NATAL

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

**MATHEMATICS P1
COMMON TEST
JUNE 2019
MARKING GUIDELINE**

MARKS: 50

This marking guideline consists of 4 pages.

QUESTION 1

1.1.1	$3x^3 - 2x^2(x+5)$ $= 3x^3 - 2x^3 - 10x^2$ $= x^3 - 10x^2$	$\checkmark -2x^3 - 10x^2$ $\checkmark x^3 - 10x^2$ (2)
1.1.2	$(2x-1)(2x+1)$ $= 4x^2 + 2x - 2x - 1$ $= 4x^2 - 1$	$\checkmark 4x^2 \checkmark -1$ (2)
1.1.3	$\frac{1}{4}x(4x^{-1} - 8x)$ $= 1 - 2x^2$	$\checkmark 1 \checkmark -2x^2$ (2)
1.2	$y^2(y-2) + x^2(2-y)$ $= y^2(y-2) - x^2(y-2)$ $= (y-2)(y^2 - x^2)$ $= (y-2)(y-x)(y+x)$	$\checkmark (y-2)$ $\checkmark (y^2 - x^2)$ $\checkmark (y-x)(y+x)$ (3)
1.3.1	$x = 12$	$\checkmark a$ (1)
1.3.2	$x = 11$	$\checkmark a$ (1)
1.3.3	$x = 12\frac{1}{4}$	$\checkmark a$ (1)
		[12]

QUESTION 2

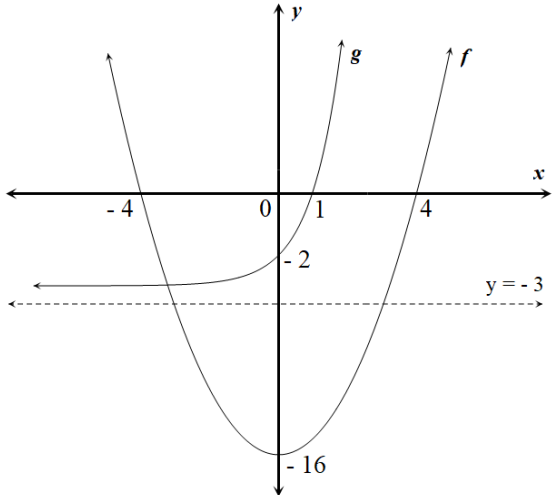
2.1.1	$2x^2 - 5x + 3 = 0$ $(2x-3)(x-1) = 0$ $\therefore x = \frac{3}{2} \text{ or } x = 1$	$\checkmark$ factors $\checkmark \checkmark$ (3)
2.1.2	$\frac{x+1}{3} - \frac{x-2}{5} - 2 = 0$ $\frac{5(x+1) - 3(x-2) - 2(15)}{15} = 0$ $5x + 5 - 3x + 6 - 30 = 0$ $2x = 19$ $x = \frac{19}{2}$	$\checkmark$ LCD = 15 $\checkmark$ $\checkmark$ (3)
2.2	$2x - 3y = 3 \quad (1)$ $2x + y = 7 \quad (2)$ $(1) - (2) \quad \frac{2x - 3y = 3}{-4y = -4}$ $y = 1$ sub $y = 1$ into (2): $2x + 1 = 7$ $x = 3$	$\checkmark$ $\checkmark$ y-value $\checkmark$ substitution $\checkmark$ x-value

	OR $2x - 3y = 3 \quad (1)$ $2x + y = 7 \quad (2)$ $(2) \times 3: 6x + 3y = 21$ $(1): 2x - 3y = 3$ $(2) + (1): \quad \underline{8x} = 24$ $x = 3$ sub $x = 3$ into (2): $2(3) + y = 7$ $y = 1$ OR $2x - 3y = 3 \quad (1)$ $2x + y = 7 \quad (2)$ $(2) \rightarrow (3): y = -2x + 7$ sub (3) into (1): $2x - 3(-2x + 7) = 3$ $2x + 6x - 21 = 3$ $8x = 24$ $x = 3$ sub $x = 3$ into (3): $y = -2(3) + 7$ $y = 1$	✓ ✓ x-value ✓ substitution ✓ y-value ✓ ✓ x-value ✓ substitution ✓ y-value (4)
2.3	$C = \frac{5(F - 32)}{9}$	✓✓ (2)
		[12]

QUESTION 3

3.1	$p = 14$ $q = 27$	✓ a ✓ a (2)
3.2	$k = 2$	✓ a (1)
3.3	$R_n = 7n - 1$	✓ 7n ✓ - 1 (2)
3.4	$B_6 = 3(6) + 2 = 20$ $\therefore$ enough bolts to make $\frac{200}{20} = 10$ 6m fences $R_6 = 7(6) - 1 = 41$ $\therefore$ enough rods to make $\frac{400}{41} = 9.8$ 6m fences There is enough to make 9 complete 6m fences.	✓ ✓ ✓ (3)
		[8]

QUESTION 4

4.1	y-intercept: (0 ; -16)	✓ (1)
4.2	$g(x) = 3^x - 3$ $0 = 3^x - 3$ $3^x = 3$ $x = 1$ x-intercept: (1 ; 0) Answer only: 2/2	✓ $0 = 3^x - 3$ ✓ (2)
4.3		$f(x)$: ✓ x-intercepts ✓ y-intercept ✓ shape $g(x)$: ✓ intercepts ✓ asymptote (5)
4.4	$x \in (2; \infty)$ OR $x > 2$	✓ (1)
4.5	x-axis reflection	✓ (1)
		[10]

QUESTION 5

5.1	$y = -2$	✓ (1)
5.2	Sub point $(4; -2\frac{1}{2})$ into $f(x) = \frac{-a}{x} - 2$: $-2\frac{1}{2} = \frac{-a}{4} - 2$ $-\frac{1}{2} = \frac{-a}{4}$ $a = 4 \times \frac{1}{2}$ $a = 2$	✓ substitution ✓ (2)
5.3	$y = -x + c$ sub $(0; -2)$: $-2 = -(0) + c$ $c = -2$ $\therefore y = -x - 2$	✓ $c = -2$ ✓ (2)
5.4	$x \in \mathbb{R}; x \neq 0$ or $x \in (-\infty; \infty); x \neq 0$	✓✓ (2)
5.5	f decreases for NO values of x .	✓ (1)
		[8]