higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

MATHEMATICS N1

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This marking guideline consists of 7 pages.

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QUESTION 1

1.1 1.1.1 $= a^3 \times a^2 \times 2(1)$ ✓
$= 2a^5$ ✓ (2)

1.1.2 $= \dfrac{3x^2y^3 \times 16x^2y^2 \checkmark \times 1 \checkmark}{4x^4y^3}$
$= \dfrac{48x^4y^5 \checkmark}{4x^4y^3}$
$= 12y^2$ ✓ (4)

1.1.3 $= 2xy^2 \checkmark \times \dfrac{1}{3} \times 9xy^3 \checkmark$
$= 6x^2y^5$ ✓ (3)

1.2 1.2.1 $= \dfrac{\log(5 \times 2)}{\log(20 \times 5)}$
$= \dfrac{\log 10 \checkmark}{\log 100 \checkmark}$
$= \dfrac{\log 10}{\log 10^2}$
$= \dfrac{\log 10}{2 \log 10} \checkmark$
$= \dfrac{1}{2} \checkmark$ (4)

1.2.2 $= 7(1) \checkmark - \dfrac{1}{2}\log_2 2^6$
$= 7 - \left(\dfrac{1}{2}\right)(6)\log_2 2 \checkmark$
$= 7 - 3(1)$
$= 4 \checkmark$ (3)
[16]

QUESTION 2

2.1

$$2b - 3 \;\overline{)\; 4b^3 - 12b^2 + 5b + 6}$$

$2b^2 - 3b - 2$ ✓✓✓

$4b^3 - 6b^2$ ✓
$-6b^2 + 5b$
$-6b^2 + 9b$ ✓
$-4b + 6$
$-4b + 6$ ✓
0

(6)

2.2 $3a^2 - 7b - 3$
$\underline{-(-4a^2 + 5b + 5)}$
$7a^2 \checkmark - 12b \checkmark - 8 \checkmark$ (3)
[9]

QUESTION 3

3.1 3.1.1 $= 2x \checkmark (x - 25) \checkmark\checkmark$ (3)

3.1.2 $= (2x^2 + 6x) + (-x - 3)$
$= 2x(x + 3) \checkmark - (x + 3) \checkmark$
$= (x + 3) \checkmark (2x - 1) \checkmark$

Alternative answer:
$= (2x^2 - x) + (6x - 3)$
$= x(2x - 1) + 3(2x - 1)$
$= (2x - 1)(x + 3)$ (4)

3.2 $= \frac{2(a-2) \checkmark}{(a+2)} \times \checkmark \frac{4(a+2) \checkmark}{(a-2)}$
$= 8 \checkmark$ (4)

3.3 $9r^4x^2y^3 = 3^2 \times r^4x^2y^3 \checkmark$
$6r^3x^3y^2 = 2 \times 3 \times r^3x^3y^2 \checkmark$
$42r^2x^5y^7 = 2 \times 3 \times 7 \times r^2x^5y^7 \checkmark$

HCF $= 3r^2x^2y^2 \checkmark$
LCM $= 126r^4x^5y^7 \checkmark$ (5)
[16]

QUESTION 4

4.1 4.1.1 $2x^2 - 2x \checkmark - 2x^2 + 5 = -7$
$-2x = -7 - 5$
$-2x = -12 \checkmark$
$x = 6 \checkmark$ (3)

4.1.2 $5x - 3 = 3x + 15$
$5x - 3x \checkmark = 15 + 3 \checkmark$
$2x = 18 \checkmark$
$x = 9 \checkmark$ (4)

4.2 $13 - \frac{1}{2}x = 5$

$-\frac{1}{2}x = 5 - 13$

$-\frac{1}{2}x = -8$ ✓

$-x = -16$ ✓

$x = 16$ ✓ (3)

4.3 $2S = n(a + l)$ ✓

$\frac{2S}{n} = a + l$ ✓

$\frac{2S}{n} - l = a$

$\therefore a = \frac{2S}{n} - l$ ✓ (3)

[13]

QUESTION 5

5.1 5.1.1 $y = 3x$ ✓ $+ 1$ ✓ (2)

5.1.2 $y = mx + c$

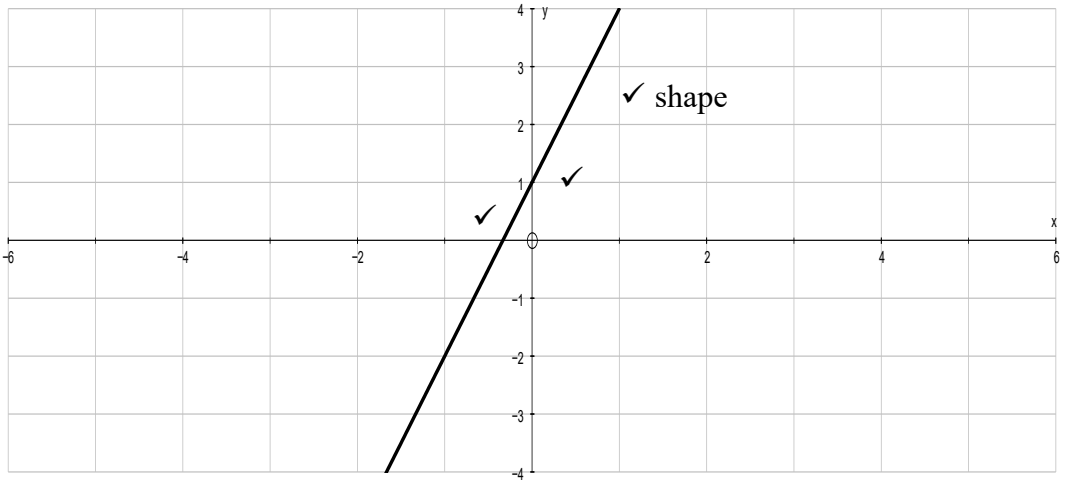
$1 = m(-2) - 1$ ✓

$2 = -2m$

$m = -1$ ✓

$y = -x - 1$ ✓ (3)

5.1.3 $(DONE\ ON\ GRAPH\ PAPER)\ y = 3x + 1$ ✓



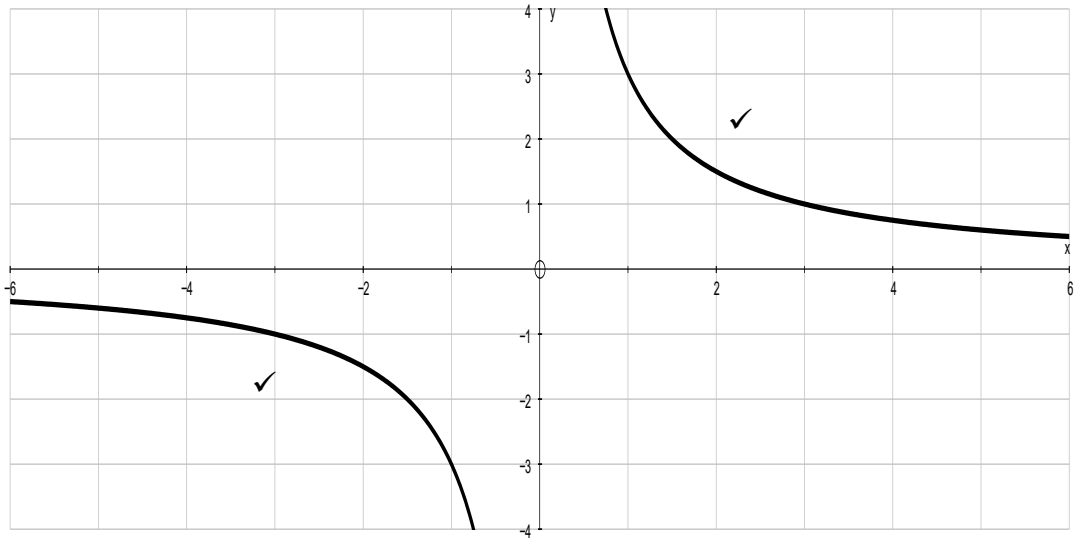
(4)

5.2 $y = \frac{3}{x}$ ✓

x	-3	-1	1	3
y	-1	-3	3	1

✓✓

$(DONE\ ON\ GRAPH\ PAPER)$



(5)
[14]

QUESTION 6

6.1 40° (1)

6.2 $a = 62°$ ✓(alternative ∠'s, $AD \parallel BC$) ✓
$b = 56°$ ✓(alternative ∠'s, $AD \parallel BC$) ✓
$c = 62°$ ✓(interior ∠'s of a Δ) ✓
$d = 62°$ ✓(interior ∠'s of a Δ / opposite ∠'s) ✓ (8)
[9]

QUESTION 7

7.1 7.1.1 $x^2 = 5^2 - 3^2$(Pythagoras) ✓
$x^2 = 16$ ✓
$x = 4$ ✓ (3)

7.1.2 $= \frac{4}{5}$ ✓ (1)

7.1.3 $= 1 \div \frac{3}{4}$ ✓

$= 1 \times \frac{4}{3}$

$= \frac{4}{3}$ ✓

Alternative answer:

$= 1\frac{1}{3}$

(2)

7.2 $= \left(6 \times \frac{1}{2}\right)$ ✓ $- \left(4 \times \frac{1}{2}\right)$ ✓

$= 3 - 2$

$= 1$ ✓ (3)

[9]

QUESTION 8

8.1 8.1.1 $RT = 50\ mm$ ✓ (1)

8.1.2 $ST^2 = 50^2 - 30^2$ (Pythagoras) ✓

$ST^2 = 1\ 600$ ✓

$ST = 40\ mm$ ✓ (3)

8.1.3 $P = 50 + 70 + 30 + 40 + 70$ ✓

$P = 260\ mm$ ✓ (Give 2 marks if only the answer is given.) (2)

8.2 $A = l \times b$

$750 = 30b$ ✓

$\therefore b = \frac{750}{30}$

$b = 25\ cm$ ✓ (2)

8.3 $= \frac{72}{100} \times \frac{6\ 500}{1}$ ✓

$= R4\ 680$ ✓ (Give 2 marks if only the answer is given.) (2)

8.4 First sibling's share:

$= \frac{4}{9} \times 81\ 000\ 000$ ✓

$= R36\ 000\ 000$ ✓

Second sibling's share:

$= \frac{5}{9} \times 81\ 000\ 000$ ✓

$= R45\ 000\ 000$ ✓

ALTERNATIVE ANSWER

First sibling's share:

$= \frac{4}{9} \times 81\ 000\ 000$

$= R36\ 000\ 000$

Second sibling's share:

$= 81\ 000\ 000 - 36\ 000\ 000$

$= R45\ 000\ 000$ (4)

[14]

TOTAL: 100

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