higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

MATHEMATICS N1

8 April 2021

This marking guideline consists of 7 pages.

Copyright reserved

QUESTION 1

1.1 1.1.1 $20a^7b^9$ (2)

1.1.2 $= 3x \times x^{-1}y^0$ ✓✓
$= 3$ ✓ (3)

1.1.3 $= 64x^3y^3 \div 8x^2y^2 \times 1$ ✓✓
$= 8xy$ ✓ (3)

1.2 1.2.1 $= \log\frac{25\times 4}{10}$ ✓
$= \log\frac{100}{10}$ ✓
$= \log 10$
$= 1$ ✓ (3)

1.2.2 $= \frac{6\log_2 2 + 4\log_2 2}{3\log_2 2 - \log_2 2}$ ✓✓
$= \frac{6+4}{3-1}$ ✓
$= 5$ ✓ (4)
[15]

QUESTION 2

2.1 $= (7a - 4b + 3) + (-a + 6b - 5)$
$= 6a + 2b - 2$ ✓✓✓ (3)

2.2 $= (-3x^2 + 2x - 1) - (-5x^2 - 3x - 2)$
$= -3x^2 + 2x - 1 + 5x^2 + 3x + 2$ ✓
$= 2x^2 + 5x + 1$ ✓✓ (3)

2.3 $= 16a^2 12a - 12a + 9$ ✓
$= 16a^2 - 24a + 9$ ✓✓ (3)
[9]

QUESTION 3

3.1 3.1.1 $2x(x^2 - 3x + 5)$ (2)

3.1.2 $= (3x^2\,3x) - (x-1)$ ✓
$= 3x(x-1) - (x-1)$ ✓✓
$= (3x-1)(x-1)$✓ (4)

3.2 $= 4x(x^2 - 6x + 9) + 4x^2 + 16x + 16 - x^2 + 3x - 2$ ✓✓
$= 4x^3 - 24x^2 + 36x + 4x^2 + 16x + 16 - x^2 + 3x - 2$✓
$= 4x^3 - 21x^2 + 55x + 14$✓ (4)

3.3 $7xyz = 7 \times xyz$ ✓
$5x^2y^2z^2 = 5 \times x^2y^2z^2$✓
$8x^5y^6z^5 = 2 \times 2 \times 2 \times x^5y^6z^5$✓
HCF $= xyz$✓
LCM $= 3 \times 2 \times 6x^3y^3z^4$ ✓
$= 280x^5y^6z^5$✓✓ (7)
[17]

QUESTION 4

4.1 4.1.1 $5x + 2x = 24 - 3$ ✓
$7x = 21$ ✓
$x = 3$ ✓

4.1.2 $8 - 24 = 20x - 30$ ✓
$-24 - 20 = 30 - 8$ ✓
$-44 = 22$
$x = -\frac{1}{2}$ ✓

(2 × 3) (6)

4.2 $6(8 + x) = 60$ ✓✓
$48 + 6x = 60$ ✓
$6x = 60 - 48$
$6x = 12$✓
$x = 2$ ✓ (5)

4.3 4.3.1 $2px + 3p = 4y + 3$

$p(2x + 3) = 4y + 3$✓

$p = \frac{4y + 3}{2x + 3}$✓

4.3.2 $p = \frac{4(-2) + 3}{2(5) + 3}$ ✓

$p = \frac{-8 + 3}{10 + 3}$

$p = \frac{-5}{13}$✓

(2 × 2) (4)
[15]

QUESTION 5

5.1 5.1.1 $m = -1$ (1)

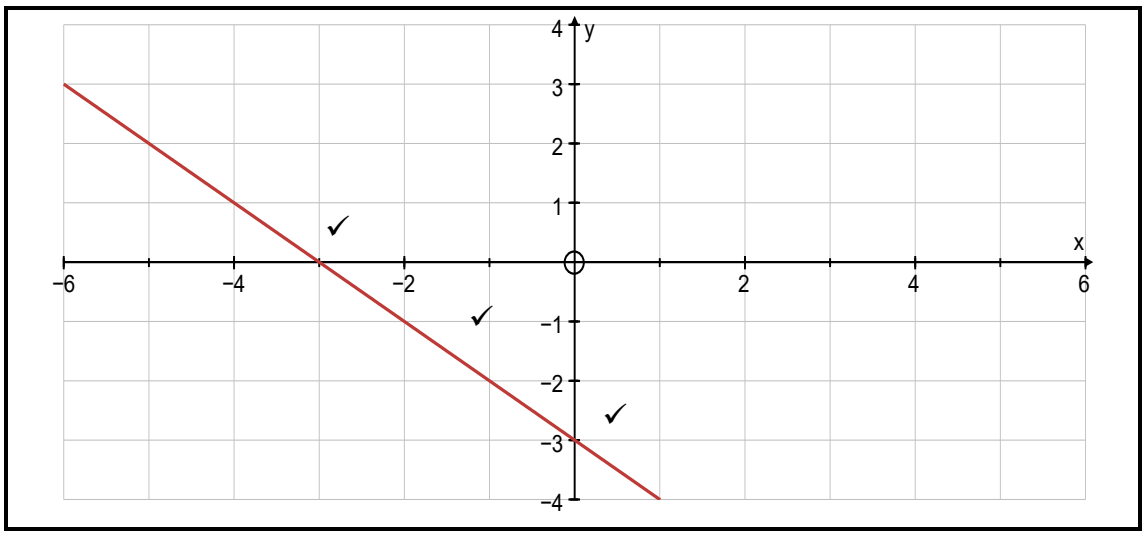
5.1.2 y = -3 (1)

5.1.3

x	-2	-1	0	1	2
y	-1	-2	-3	-4	-5

(2)

5.1.4



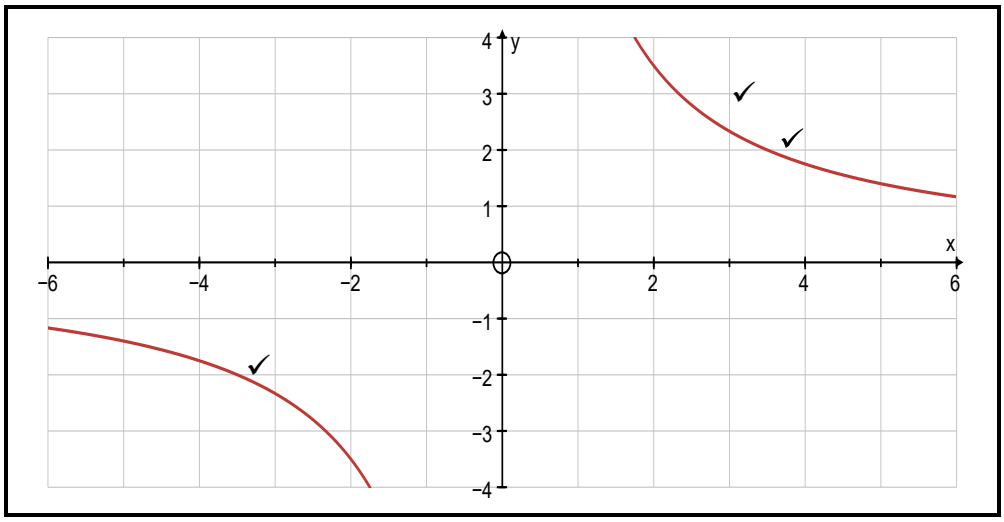
(3)

5.2 5.2.1

x	-7	-1	1	7
y	-1	-7	7	1

(2)

5.2.2



(3)
[12]

QUESTION 6

6.1 6.1.1 perpendicular
6.1.2 exterior angle

(2 × 1) (2)

6.2 a +20° + 2a +10° = 180°(∠ s on str. line)✓
3a + 30° = 180°✓
3a = 150°
a = 30°✓

b = 2a +10° (corresp. ∠ s; AE ∥ BC)✓
b = 2(50°) +10°
b = 110°✓

c = 70°(∠ s on a str. line)✓

e = c =70° (corresp. ∠ s; AE ∥ BC)✓

d = 110° ((alt. ∠ s; AE ∥ BC)✓ (8)
[10]

QUESTION 7

7.1 7.1.1

$$\tan\theta = \frac{6}{8} \checkmark$$

$$r^2 = 8^2 + 6^2$$

$$r^2 = 36 + 64$$

$$r^2 = 100$$

$$r^2 = 10 \checkmark$$

$$\sin\beta\cos\beta + \tan\beta$$

$$\left(\frac{6}{8}\right)\left(\frac{8}{10}\right) + \left(\frac{6}{8}\right) \checkmark$$

$$\frac{48}{100} + \left(\frac{6}{8}\right)$$

$$\frac{123}{100}$$

$$1\frac{23}{100} \checkmark$$

(4)

7.1.2

$$4 + 1 + \left(\frac{6}{10}\right)^2 + \left(\frac{8}{10}\right)^2 \checkmark$$

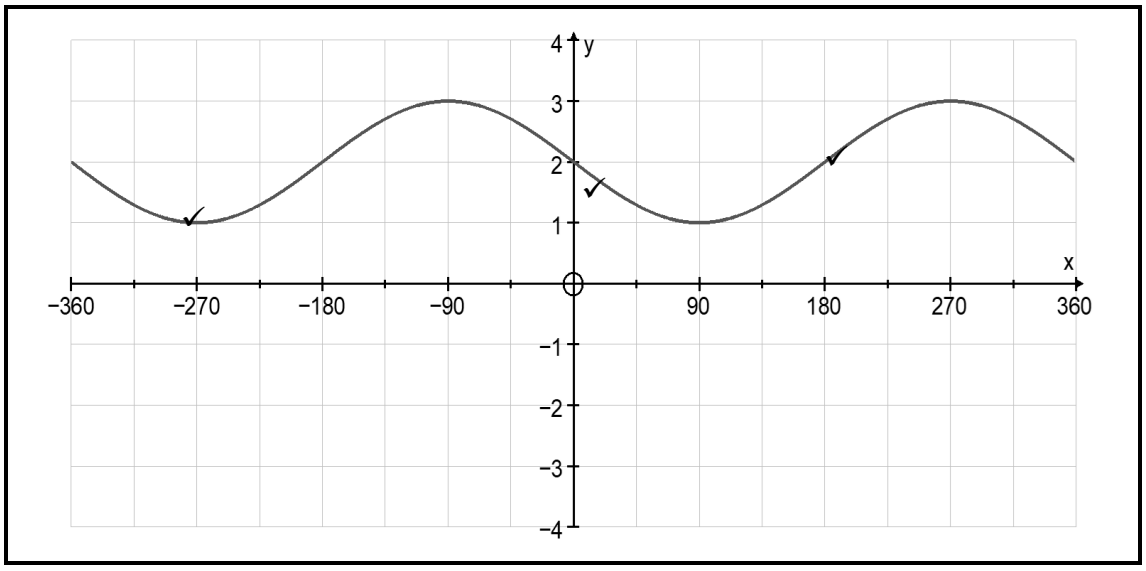
$$5 + \frac{36}{100} + \frac{64}{100} \checkmark$$

$$5 + 1$$

$$6 \checkmark$$

(3)

7.2



(3)

[10]

QUESTION 8

8.1 $C = 2\pi r$

$54 \text{ cm} = 2\pi r$ ✓

$r = \frac{54 \text{ cm}}{2\pi r}$

$r = 8{,}594 \text{ cm}$ ✓ (2)

8.2 8.2.1 $AB^2 = BE^2 + AE^2$

$(5)^2 = (3 \text{ cm})^2 + AE^2$ ✓

$AE^2 = 25 - 9$ ✓

$AE^2 = 16 \text{ cm}^2$ ✓

$AE = 4 \text{ cm}$ ✓ (4)

8.2.2 Area = bh ✓

$= 11 \text{ cm} \times 4 \text{ cm}$ ✓

$= 44 \text{ cm}^2$ ✓✓ (3)

8.3 $\frac{2}{5} \times R2\,000\,000$ ✓

$= R800\,000$ ✓

$\frac{3}{5} \times R2\,000\,000$

$= R120\,0000$ ✓ (3)

[12]

TOTAL: 100

Copyright reserved