higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

APRIL EXAMINATION

MATHEMATICS N1

31 MARCH 2015

This marking guideline consists of 7 pages.

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QUESTION 1

1.1 $\log 20 - \log_2 32 - \log 5$

$= \log_{10}^{(20\times5)} - \log_2^{2^5}$ ✓

$= \log_{10}^{100} - 5\log_2^{2}$ ✓

$= \log_{10}^{10^2} - 5(1)$ ✓

$= 2(1) - 5$ ✓

$= -3$ ✓

(5)

1.2 $6(a^{\circ}b^{\circ})^7 \times \dfrac{2(a^3)^5}{a^5}$

$6(1)^7 \times \dfrac{2a^{15}}{a^5}$ ✓✓

$= 12a^{10}$ ✓✓

(4)

1.3 $x = 3{,}25^4 \times 2{,}86$

$\ell nx = 4\ell n3{,}25 - \ell n2{,}86$ ✓✓

$\ell nx = 4{,}715 - 1{,}051$ ✓✓

$\ell nx = 3{,}664$ ✓

$= 39{,}017$ ✓

(6)
[15]

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QUESTION 2

2.1

$$d+1 \;\overline{)\; d^3+12d^2+14d+5}$$

$d^2+11d+3$ ✓✓✓

d^3+d^2

$11d^2+14d$ ✓

$11d^2+11d$

$3d+5$ ✓

$3d+3$

2 ✓

$(d+1)(d^2+11d+3)$ remainder 2

(6)

2.2 $-108px-115qr+130bd$

$-78px+65qr+42bd$

$-186px-50qr+172bd$ ✓✓✓

(3)

2.3 $(p-2)(p^2-3p-10)$

$= p^3-3p^2-10p-2p^2+6p+20$ ✓✓✓

$= p^3-5p^2-4p+20$ ✓✓

(5)

2.4 2.4.1 $2p-8+pm-4m$

$=(2p-8)+(pm-4m)$ ✓✓

$=2(p-4)+m(p-4)$ ✓✓

$=(2+m)(p-4)$ ✓✓

(5)

2.4.2 $\frac{1}{2}xy+\frac{1}{2}xy^2-\frac{1}{2}x^2y$

$=\frac{1}{2}xy(1+y-x)$ ✓✓

(2)

2.5 $81abc = 3^4abc$ ✓

$12a^2bc = 3\times 2^2a^2bc$ ✓

$21ab^2c = 3\times 7ab^2c$ ✓

LCM $= 3^4\times 2^2\times 7$

$= 2268a^2b^2c$ ✓✓

HCF $= 3abc$ ✓

(6)

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2.6 $$\frac{7t^2-21t^3}{5p}\div\frac{3t-9t^2}{10p}$$

$$=\frac{7t^2(1-3t)}{5p}\times\frac{10p}{3t(1-3t)}\checkmark\checkmark$$

$$=\frac{7t^2\times 2}{3t}\checkmark$$

$$=\frac{14t}{3}\checkmark$$

(4)
[31]

QUESTION 3

3.1 $$12+3x-3=4(30-x)$$

$$15+3x=120-4x\checkmark\checkmark$$

$$7x=105\checkmark$$

$$x=15\checkmark$$

(4)

3.2 $$y+y+2+y+4=21\checkmark$$

$$3y+6=21\checkmark$$

$$3y=21-6$$

$$3y=15\checkmark$$

$$y=5\checkmark$$

Numbers are 5 ; 7 and 9✓

(4)

3.3 $$v=\frac{1}{2}\pi r^2h$$

$$2v=\pi r^2h\checkmark$$

$$\frac{2v}{\pi h}=r^2\checkmark$$

$$\therefore r=\sqrt{\frac{2v}{\pi h}}\checkmark$$

(3)

3.4 $$\therefore r=\sqrt{\frac{2v}{\pi h}}$$

$$=\sqrt{\frac{2(7)}{\pi(6)}}\checkmark$$

$$=\sqrt{0,743}\checkmark$$

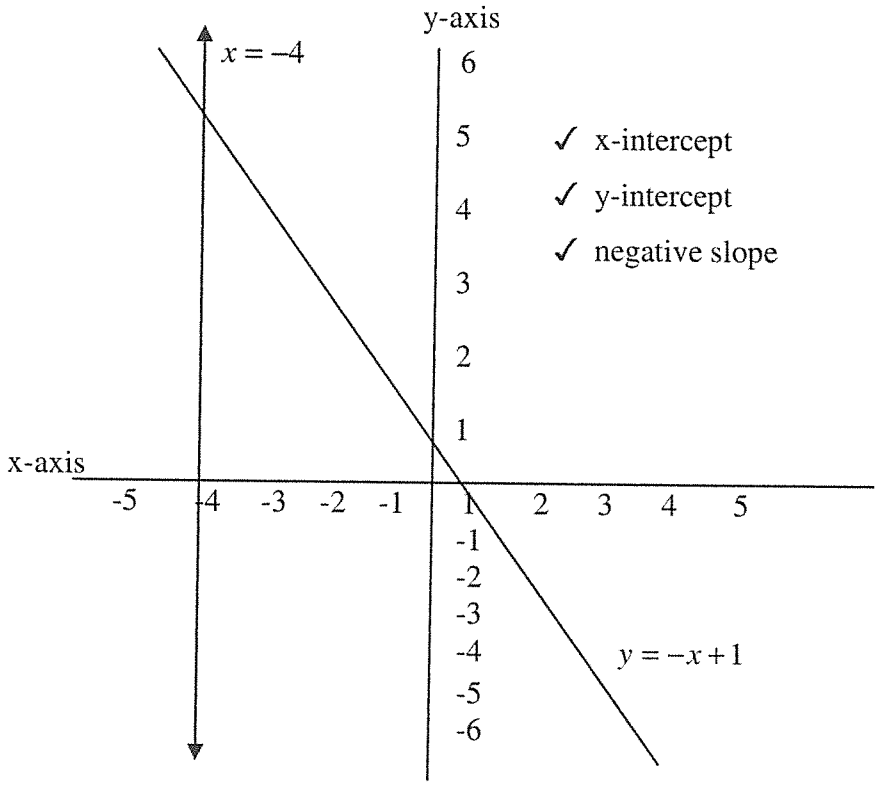
$$=0,862\checkmark$$

(3)
[14]

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QUESTION 4

4.1 4.1.1 $y = -x + 1$ and $x = -4$



Scale 1cm=1 unit (6)

4.1.2 $(-4\,;5)$ ✓ ✓ (2)

4.2.1 $a = 3$ ✓

$b = 8$ ✓ (2)

4.2.2 $y = x + 2$ ✓ ✓ (2)

[12]

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QUESTION 5

5.1 $\Delta CBD = \angle A + \Delta ACB$

$= 48^0 + 62^0$ ✓

$= 110^0$ ✓

$\therefore \Delta CBD + \Delta CBD + \Delta BCD$

$\Delta CDB = 180^0 - 110^0 - 32^0$ ✓

$= 38^0$ ✓

(6)

5.2 $\frac{AB}{AC} = \frac{DB}{DE}$ ✓

$\frac{AB}{50} = \frac{15}{25}$ ✓

$AB = \frac{50 \times 15}{25}$ ✓

$= 30\ mm$ ✓

$AD = AB - BD$

$= 30 - 15$ ✓

$= 15\ mm$ ✓

(6)

5.3 $\sqrt{4}\cos 45^0 (\sin 45^0)$

$= 2 \times \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}}$ ✓ ✓

$= 2 \times \frac{1}{2}$ ✓

$= 1$ ✓

(4)
[16]

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QUESTION 6

6.1 Floor area = $4,5 \times 5,5$

$= 24,75\ m^2$ ✓

Area of one tile $=0,415 \times 0,390$ ✓

$=0,162\ m^2$ ✓

Number of tiles required $= \dfrac{24,75}{0,162}$ ✓

$= 152,778$

$\approx 153\ tiles$ ✓ (5)

6.2 6.2.1 $\dfrac{12}{100} \times R1003,17^c$

$R120,38^c$ ✓ (1)

6.2.2 $\dfrac{7,5}{100} \times 300$

$= 22,5\ mm$ ✓

$= 2,25\ cm$ ✓ (2)

6.3 8% of $R7,50^c$

$=0,08 \times R7,50^c$ ✓

$=0,6$ ✓

$\therefore R7,50c + 0,6$ ✓

The new price is $R8,10^c$ (4)

[12]

TOTAL: 100

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