higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NASIENRIGLYN

NASIONALE SERTIFIKAAT

WISKUNDE N1

23 Julie 2018 (X-Vraestel)
09:00–12:00

Hierdie nasienriglyn bestaan uit 7 bladsye.

Kopiereg voorbehou

VRAAG 1

1.1 1.1.1

$= a^2b^3 \times a^4b^2$
$= a^{2+4}b^{3+2}$
$= a^6b^5$ ✓✓ (2)

1.1.2

$= \dfrac{27\overset{\checkmark}{x^9}y^6 \times \overset{\checkmark}{1}}{x^2y^2}$ ✓
$= 27x^7y^4$ ✓ (4)

1.1.3

$= \sqrt{73-9}$ ✓ $\times 2(1)$ ✓$+1$✓
$= \sqrt{64} \times 2+1$
$= 8\times 2+1$
$= 17$✓ (4)

1.2 1.2.1

$\log 25 + \log 4$
$= \log(25\times 4)$
$= \log 100$ ✓
$= \log_{10} 10^2$
$= 2\log_{10} 10$
$= 2(1)$
$=2$✓ (2)

1.2.2

$= \dfrac{\log 2^3}{\log 7} \times \dfrac{\log 7^2}{\log 2^2}$
$= \dfrac{3\log 2}{\log 7} \times \dfrac{2\log 7}{2\log 2}$ ✓✓
$= \dfrac{6}{2}$
$= 3$✓ (3)

[15]

VRAAG 2

2.1
$$x+2\overline{)x^3+x^2-4x-4}$$
x^2-x-2 ✓✓✓

x^3+2x^2
$-x^2-4x$
$-x^2-2x$
$-2x-4$
$-2x-4$
0

(3)

2.2
$$-2x^2+x+3-(7x-8x^2+3)$$
$$=-2x^2+x+3-7x+8x^2-3$$
$$=\ 6x^2\checkmark-6x\checkmark+0\checkmark$$

(3)
[6]

VRAAG 3

3.1 3.1.1
$$=4(6x-3yx^2+4y^2)\checkmark\checkmark$$

(2)

3.1.2
$$=5a^2+a^2b+5b+b^2\checkmark$$
$$=(5a^2+5b)+(a^2b+b^2)$$
$$=5(a^2+b)+b(a^2+b)$$
$$=(a^2+b)(5+b)\checkmark\checkmark$$

of
$$=5a^2+a^2b+5b+b^2$$
$$=(5a^2+a^2b)+(5b+b^2)$$
$$=a^2(5+b)+b(5+b)$$
$$=(5+b)(a^2+b)$$

(3)

3.2 3.2.1
$$=\frac{3x^2+4x^2-7x^2\checkmark\checkmark}{6\checkmark}$$
$$=\ 0\checkmark$$

(4)

3.2.2
$$=\frac{x^2-4x}{4y}\times\frac{4xy}{xy(x-y)}\times\frac{y^2-y}{x}\checkmark$$
$$=\frac{x(x-4)\checkmark}{4y}\times\frac{4xy}{xy(x-y)}\times\frac{y(y-1)}{x}\checkmark$$
$$=\frac{(x-4)(y-1)\checkmark}{x-y\checkmark}$$

(5)

3.3
$$5m^2n^4l^2=\ 5\times m^2n^4l^2$$
$$15mn^3l\ =\ 3\times5\times mn^3l\checkmark$$
$$10m^3nl^4=\ 2\times5\times m^3nl^4\checkmark$$

$$\text{LGV}=2\times3\times5\times m^3n^4l^4$$
$$=30\checkmark m^3n^4l^4\checkmark$$

$$\text{HGF}=5\checkmark mnl\checkmark$$

(6)
[20]

VRAAG 4

4.1 4.1.1
$$5x - 20 \checkmark = 3x - 6 \checkmark$$
$$5x - 3x = -6 + 20$$
$$2x = 14 \checkmark$$
$$x = 7 \checkmark$$ (4)

4.1.2
$$3x - 15 = 12$$
$$3x = 27 \checkmark$$
$$x = 9 \checkmark$$ (2)

4.2

	Ouderdom tans	**Ouderdom oor 4 jaar**
Mavis	x	$x+4$
Sarah	$5x$	$5x+4$

$5x + 4 = 3(x + 4)$ ✓✓
$5x + 4 = 3x + 12$
$5x - 3x = 12 - 4$
$2x = 8$
$x = 4$

Mavis is 4 jaar oud✓ en Sarah is 20 jaar oud. ✓ (4)

4.3 4.3.1
$$V = \pi r^2 h$$
$$r^2 = \frac{V}{\pi h} \checkmark$$
$$r = \sqrt{\frac{V}{\pi h}} \checkmark$$

4.3.2
$$r = \sqrt{\frac{630}{\pi 5}} \checkmark$$
$$r = 6{,}333\ cm \checkmark$$

(2 × 2) (4)
[14]

VRAAG 5

5.1 5.1.1
$A(0\,;6)$✓
$B(-3\,;0)$✓ (2)

5.1.2 $m = 2$ (1)

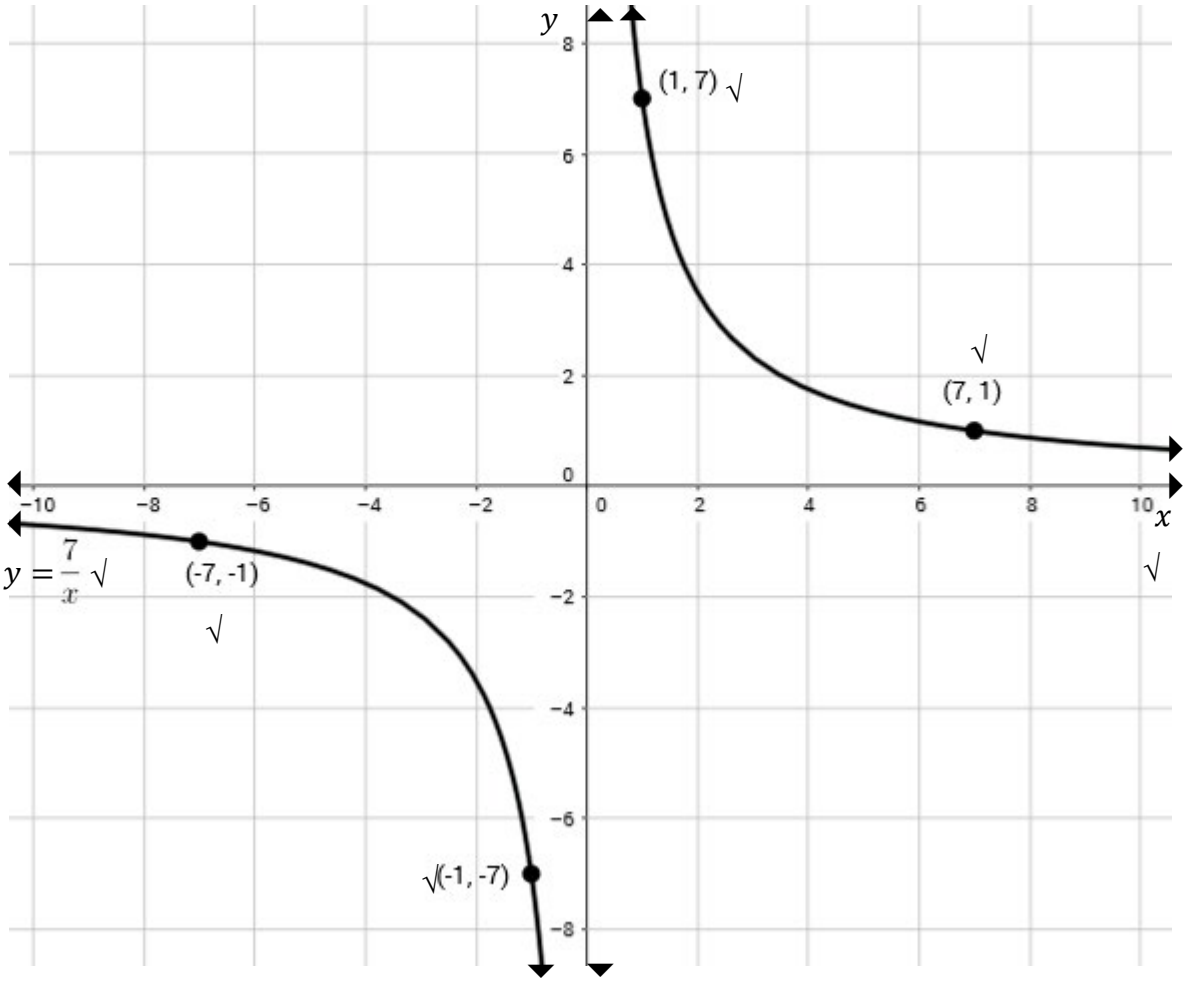
5.1.3 $y = 2x + 6$ (1)

5.2 5.2.1

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

✓✓ (2)

5.2.2



(3)

5.2.3 Direkte verhouding.

5.2.4 Hiperbool.

(2 × 1) (2)

[11]

VRAAG 6

6.1 6.1.1 'n Driehoek wat uit twee gelyke sye bestaan.

6.1.2 Wanneer die som van twee hoeke gelyk is aan 180°.

(2 × 1) (2)

6.2 6.2.1 $\frac{AB}{EF} = \frac{BC}{FG} = \frac{AC}{EG}$ ✓ ✓

(1)

6.2.2 $\frac{AB}{EF} = \frac{BC}{FG}$

$\frac{15}{5} = \frac{45}{x}$✓

$x = \frac{45 \times 5}{15}$

$x = 15\ cm$✓ (2)

6.3 $\hat{R}_1 = 70^0$ ($\angle s$ teenoorstaande gelyke sye)

$y = 40^0$(*som* van $\angle s$ of 'n

$x = 110^0$($\angle s$ **op 'n reguit lyn)**✓✓

OF

$x = 40^0 + 70^0$(*verlengde.*$\angle$ **van 'n** Δ) (4)
[9]

VRAAG 7

7.1 $= \frac{1}{\sqrt{2}}$ ✓$\times \frac{1}{\sqrt{3}} \times \frac{1}{\sqrt{3}}$ ✓$\div \frac{\sqrt{3}}{2}$ ✓

$= \frac{2}{3\sqrt{6}}$✓ (4)

7.1 7.2.1 $\sin \hat{R} = \frac{r}{s}$

7.2.2 $\cos \hat{T} = \frac{r}{s}$

(2 × 1) (2)

7.3 7.3.1 $= \sin(30^0 + 40^0)$

$= \sin(70^0)$ ✓

$= 0{,}940$✓ (2)

7.3.2 $= \cos 30^0 + \cos 40^0$

$= 0{,}866025403$ ✓$+ 0{,}766044443$✓

$= 1{,}632$✓ (3)
[11]

VRAAG 8

8.1 R14,30 – R13,88✓
= 0,42✓

$$\text{Persentasiestyging} = \frac{R0{,}42}{R13{,}88} \times \frac{100}{1}$$
$$= 3{,}025\%\checkmark \quad (3)$$

8.2 $A = \frac{1}{2}$ basis x hoogte✓

$8 = \frac{1}{2},3 \times hoogte$ ✓

$16 = 3 \times hoogte$

$\text{Hoogte} = \frac{16}{3}$

$h = 5{,}333\ cm$✓ (3)

8.3 8.3.1 V= $l \times b \times h$ ✓
$= 4 \times 1.5 \times 2$ ✓
$= 12\ cm^3$ ✓ (3)

8.3.2 = 12 *ml* ✓ (1)

8.3.3 $A = 2(bl + lh + bh)$
$= 2(1{,}5 \times 4 + 4 \times 2 + 1{,}5 \times 2)$ ✓
$= 2(6 + 8 + 3)\ cm^2$ ✓
$= 34$✓cm^2 ✓ (4)
[14]

TOTAAL: 100

Kopiereg voorbehou