

Wiskunde Anibrand

Antwoordboek Graad 8

Annie Bothma

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Graad 8 Antwoordboek opgestel deur A Bothma

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Hoofstuk 1

Getalle, Bewerkings en Verwantskappe

Antwoorde 1A: Getalgestelsels gr 8

1.

Getal	\mathbb{R}	\mathbb{Q}'	\mathbb{Q}	\mathbb{Z}	\mathbb{N}_0	\mathbb{N}
$-5\frac{2}{3}$	✓		✓			
3,2574	✓		✓			
$\sqrt{16} = 4$	✓		✓	✓	✓	✓
$\sqrt{15} = 3,87\dots$	✓	✓				
-2	✓		✓	✓		
$\pi = 3,141\dots$	✓	✓				
$\frac{22}{7}$	✓		✓			
$-0,3 = -\frac{3}{10}$	✓		✓			
8,2543\dots	✓	✓				

2.1 $\sqrt{35} = 5,916079\dots$
 $\approx 5,916$

2.2 $\sqrt[3]{12} = 2,289428\dots$
 $\approx 2,289$

2.3 $\pi = 3,141592\dots$
 $\approx 3,142$

2.4 $5\pi = 15,7079632679$
 $\approx 15,708$

2.5 $\frac{7\pi}{3} = 7,33038285838$
 $\approx 7,330$

2.6 $\pi + 9 = 12,141592\dots$
 $\approx 12,142$

2.7 $7\sqrt{10} = 22,135943\dots$
 $\approx 22,136$

2.8 $\frac{\sqrt[3]{65}}{12} = 0,335060\dots$
 $\approx 0,335$

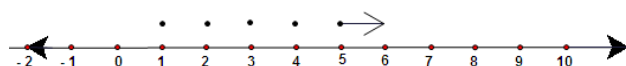
3.1 Getabelleerd: $\{0; 1; 2; 3\}$

Grafies: **Onthou telgetalle begin by 0**



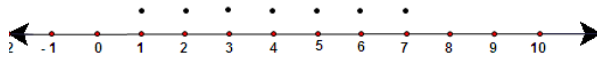
3.2 Getabelleerd: $\{1; 2; 3; \dots\}$

Grafies: **Onthou natuurlike getalle begin by 1**



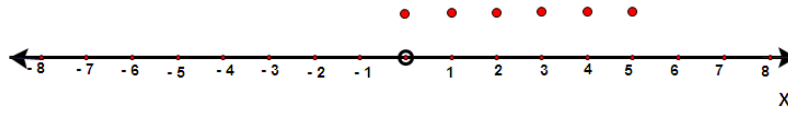
3.3 Getabelleerd: $\{1;2;3;4;5;6;7\}$

Grafies:



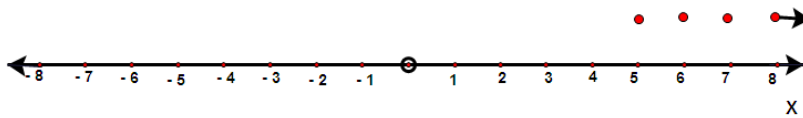
3.4 Getabelleerd: $\{0;1;2;3;4;5\}$

Grafies: **Onthou telgetalle begin by 0**



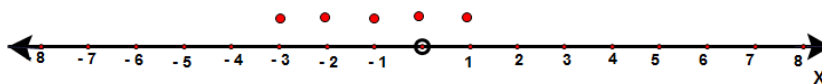
3.5 Getabelleerd: $\{5;6;7;8;.....\}$

Grafies: **Onthou natuurlike begin by 1**



3.6 Getabelleerd: $\{-3;-2;-1;0;1\}$

Grafies:



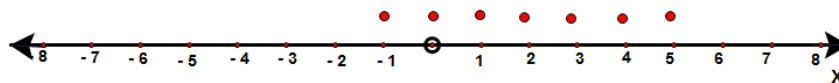
3.7 Getabelleerd: $\{0;1;2;3\}$

Grafies: **Onthou telgetalle begin by 0**



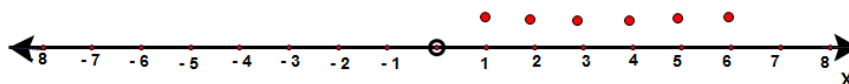
3.8 Getabelleerd: $\{-1;0;1;2;3;4;5\}$

Grafies:



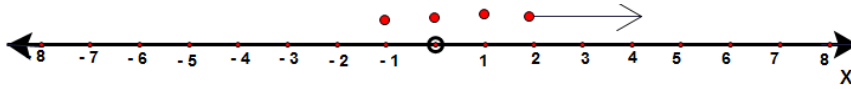
3.9 Getabelleerd: $\{1;2;3;4;5;6\}$

Grafies: **Onthou natuurlike begin by 1**



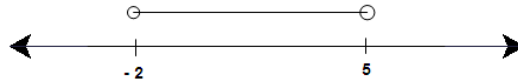
3.10 Getabelleerd: $\{-1; 0; 1; 2; \dots\}$

Grafies:



3.11 Geen tabellering

Grafies:



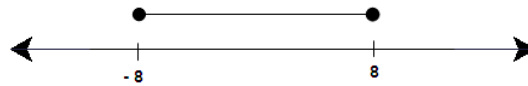
3.12 Geen tabellering

Grafies:



3.13 Geen tabellering

Grafies:



3.14 Geen tabellering

Grafies:



3.15 Geen tabellering

Grafies:



3.16 Geen tabellering

Grafies:



3.17 Geen tabellering

Grafies:



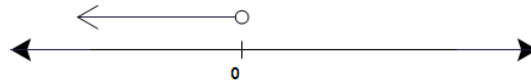
3.18 Geen tabellering

Grafies:



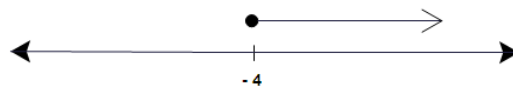
3.19 Geen tabellering

Grafies:



3.20 Geen tabellering

Grafies:



4.

Getal	\mathbb{N}	\mathbb{N}_0	\mathbb{Z}	\mathbb{Q}	\mathbb{Q}'	\mathbb{R}	nie- \mathbb{R}
Bv. $-5\frac{2}{3} = \frac{-17}{3}$	×	×	×	√	×	√	×
2,813	×	×	×	√	×	√	×
4,1	×	×	×	√	×	√	×
$\sqrt{-25}$	×	×	×	×	×	×	√
$\sqrt[3]{-27} = -3$	×	×	√	√	×	√	×
3π	×	×	×	×	√	√	×
$\sqrt{15} = 3,872\dots$	×	×	×	×	√	√	×
$\sqrt{36+64} = \sqrt{100} = 10$	√	√	√	√	×	√	×
81,24873....	×	×	×	×	√	√	×
$-\sqrt{100} = -10$	×	×	√	√	×	√	×
$0 \div 36 = 0$	×	√	√	√	×	√	×

5. $\pi = 3,141\dots$; $1,6\dot{5}$; $\sqrt[3]{64} = 4$; $\sqrt{82} = 9,055\dots$; $\frac{22}{7}$; $\sqrt{-36}$; 1,2435.....

5.1 π ; $\sqrt{82}$; 1,2435.....

5.2 $\sqrt{-36}$

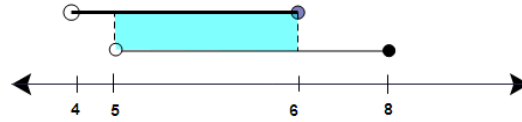
6.1



6.2

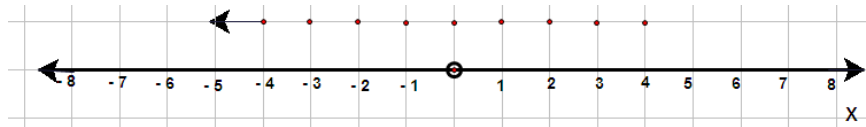


6.3

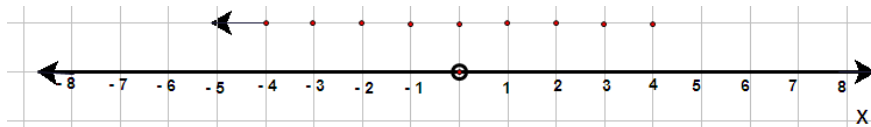


Al die reële getalle groter as 5 en kleiner en gelyk aan 6

7. $x < 5$ en $x \in \mathbb{Z}$



8. $-2 < x \leq 8$ en $x \in \mathbb{R}$



Hoofstuk 1

Getalle, Bewerkings en Verwantskappe

Antwoorde 1B: Veelvoude, faktore en priemgetalle

1. $A = \{1; 2; 3; 4; \dots; 30\}$
- 1.1 $F_{18} = \{1; 2; 3; 6; 9; 18\}$ 1.2 Priemfaktore₁₈ = $\{2; 3\}$
- 1.3 $V_9 = \{9; 18; 27\}$ 1.4 $\{2; 3; 5; 7; 11; 13; 17; 19; 23; 29\}$
- 1.5 $\{2\}$
- 1.6 $\{4; 6; 8; 9; 10; 12; 14; 15; 16; 18; 20; 21; 22; 24; 25; 26; 27; 28; 30\}$
2. $V_6 = \{6; 12; 18; 24; 30; 36; 42; 48; 54; 60; 66; 72; 78; 84; \dots\}$
 $V_{6 \text{ tussen } 35 \text{ en } 80} = \{36; 42; 48; 54; 60; 66; 72; 78\}$
- 3.1 $1 \times 60; 2 \times 30; 3 \times 20; 4 \times 15; 5 \times 12; 6 \times 10$
 $F_{60} = \{1; 2; 3; 4; 5; 6; 10; 12; 15; 20; 30; 60\}$
- 3.2 $PF_{60} = \{2; 3; 5\}$
- 3.3 $SF_{60} = \{4; 6; 10; 12; 15; 20; 30; 60\}$
4. Dit is 'n getal wat meer as 2 faktore het.
5. $1 \times 36; 2 \times 18; 3 \times 12; 4 \times 9; 6 \times 6$
 $F_{36} = \{1; 2; 3; 4; 6; 9; 12; 18; 36\}$
 $SF_{36} = \{4; 6; 9; 12; 18; 36\}$
- 6.1 $F_{36} = \{1; 2; 3; 4; 6; 9; 12; \mathbf{18}; 36\}$
 $1 \times 54; 2 \times 27; 3 \times 18; 6 \times 9$
 $F_{54} = \{1; 2; 3; 6; 9; \mathbf{18}; 27; 54\}$
- 6.2 GGF = 18
- 7.1 $V_{12} = \{12; 24; \mathbf{36}; 48; 60; 72; 84; 96; 108; 120\}$
 $V_{18} = \{18; \mathbf{36}; 54; 72; 90; 108; 126; 144; 162; 180\}$
- 7.2 KGV = 36
- 8.1 $24 = 2 \times 2 \times 2 \times 3$
- 8.2 $63 = 3 \times 3 \times 7$
- 8.3 $2 \overline{)360}$ 8.4 $3 \overline{)3465}$
 $2 \overline{)180}$ $3 \overline{)1155}$
 $2 \overline{)90}$ $5 \overline{)385}$
 $3 \overline{)45}$ $7 \overline{)77}$
 $3 \overline{)15}$ $11 \overline{)11}$
 $5 \overline{)5}$ $\overline{)1}$
 $\overline{)1}$ $3465 = 3 \times 3 \times 5 \times 7 \times 11$
- $360 = 2 \times 2 \times 2 \times 3 \times 3 \times 5$

$$\begin{array}{l}
 8.5 \quad 2 \mid 588 \\
 \quad \quad 2 \mid 294 \\
 \quad \quad 3 \mid 147 \\
 \quad \quad 7 \mid 49 \\
 \quad \quad 7 \mid 7 \\
 \quad \quad \mid 1
 \end{array}$$

$$588 = 2 \times 2 \times 3 \times 7 \times 7$$

$$\begin{array}{l}
 8.6 \quad \frac{1800}{5400} \qquad 2 \mid 1800 \qquad 2 \mid 5400 \\
 = \frac{2^3 \times 3^2 \times 5^2}{2^3 \times 3^3 \times 5^2} \qquad 2 \mid 900 \qquad 2 \mid 2700 \\
 = \frac{1}{3} \qquad 2 \mid 450 \qquad 2 \mid 1350 \\
 \qquad \quad 3 \mid 225 \qquad 3 \mid 675 \\
 \qquad \quad 3 \mid 75 \qquad 3 \mid 225 \\
 \qquad \quad 5 \mid 25 \qquad 3 \mid 75 \\
 \qquad \quad 5 \mid 5 \qquad 5 \mid 25 \\
 \qquad \quad 1 \qquad 5 \mid 5
 \end{array}$$

$$\begin{array}{l}
 9.1 \quad 2 \mid 112 \\
 \quad \quad 2 \mid 56 \\
 \quad \quad 2 \mid 28 \\
 \quad \quad 2 \mid 14 \\
 \quad \quad 7 \mid 7 \\
 \quad \quad \mid 1
 \end{array}
 \qquad
 \begin{array}{l}
 2 \mid 210 \\
 3 \mid 105 \\
 5 \mid 35 \\
 7 \mid 7 \\
 \mid 1
 \end{array}$$

$$\begin{array}{l}
 112 = 2 \times 2 \times 2 \times 2 \times 7 \\
 210 = 2 \times 3 \times 5 \times 7
 \end{array}$$

$$\text{GGF} = 2 \times 7 = 14$$

$$\begin{array}{l}
 9.2 \quad 2 \mid 38 \qquad 3 \mid 57 \qquad 5 \mid 95 \\
 \quad \quad 19 \mid 19 \qquad 19 \mid 19 \qquad 19 \mid 19 \\
 \quad \quad \mid 1 \qquad \quad \mid 1 \qquad \quad \mid 1
 \end{array}$$

$$\begin{array}{l}
 38 = 2 \times 19 \\
 57 = 3 \times 19 \\
 95 = 5 \times 19
 \end{array}$$

$$\text{GGF} = 19$$

$$\begin{array}{l}
 9.3 \quad 2 \mid 12 \\
 \quad \quad 2 \mid 6 \\
 \quad \quad 3 \mid 3 \\
 \quad \quad \mid 1 \\
 \end{array}
 \qquad
 \begin{array}{l}
 2 \mid 168 \\
 2 \mid 84 \\
 2 \mid 42 \\
 3 \mid 21 \\
 7 \mid 7 \\
 \mid 1
 \end{array}$$

$$\begin{array}{l}
 12 = 2 \times 2 \times 3 \\
 168 = 2 \times 2 \times 2 \times 3 \times 7
 \end{array}$$

$$\text{GGF} = 2 \times 2 \times 3 = 12$$

$$9.4 \quad 15 = 3 \times 5 \qquad 45 = 9 \times 5 = 3 \times 3 \times 5 \qquad 60 = 6 \times 10 = 2 \times 3 \times 2 \times 5$$

$$\begin{array}{l}
 15 = 3 \times 5 \\
 45 = 3 \times 3 \times 5 \\
 60 = 2 \times 2 \times 3 \times 5
 \end{array}$$

$$\text{GGF} = 3 \times 5 = 15$$

$$10. \quad 14 = 2 \times 7 \quad 28 = 4 \times 7 = 2 \times 2 \times 7 \quad 42 = 6 \times 7 = 2 \times 3 \times 7$$

$$\begin{array}{l}
 14 = 2 \times 7 \\
 28 = 2 \times 2 \times 7 \\
 42 = 2 \times 3 \times 7
 \end{array}$$

$$\text{GGF} = 2 \times 7 = 14$$

$$11.1 \quad 9 = 3 \times 3 \qquad 24 = 4 \times 6 = 2 \times 2 \times 2 \times 3$$

$$\begin{array}{l}
 9 = 3 \times 3 \\
 24 = 2 \times 2 \times 2 \times 3
 \end{array}$$

$$\text{KGV} = 3 \times 3 \times 2 \times 2 \times 2 = 72$$

$$11.2 \quad 6 = 2 \times 3 \qquad 12 = 4 \times 3 = 2 \times 2 \times 3 \qquad 18 = 2 \times 9 = 2 \times 3 \times 3$$

$$\begin{array}{l}
 6 = 2 \times 3 \\
 12 = 2 \times 2 \times 3 \\
 18 = 2 \times 3 \times 3
 \end{array}$$

$$\text{KGV} = 2 \times 3 \times 2 \times 3 = 36$$

$$11.3 \quad 19 = 1 \times 19 \quad 38 = 2 \times 19 \quad 76 = 2 \times 38 = 2 \times 2 \times 19$$

$$19 = 1 \times 19$$

$$38 = 2 \times 19$$

$$76 = 2 \times 2 \times 19$$

$$\text{KGV} = 19 \times 2 \times 2 = 76$$

$$2 \mid 270$$

$$11.4 \quad 3 \mid 15$$

$$3 \mid 45$$

$$3 \mid 135$$

$$5 \mid 5$$

$$3 \mid 15$$

$$3 \mid 45$$

$$\mid 1$$

$$5 \mid 5$$

$$3 \mid 15$$

$$\mid 1$$

$$5 \mid 5$$

$$\mid 1$$

$$3 = 3 \times 5$$

$$45 = 3 \times 3 \times 5$$

$$270 = 2 \times 3 \times 3 \times 3 \times 5$$

$$\text{KGV} = 3 \times 5 \times 3 \times 2 \times 3 = 270$$

$$12. \quad \text{Veelvoude van } \frac{1}{2} \text{ (tel in halwes): } \frac{1}{2}; \frac{2}{2} = 1; \frac{3}{2}; \frac{4}{2}; \dots$$

$$\text{Veelvoude van } \frac{1}{3} \text{ (tel in derdes): } \frac{1}{3}; \frac{2}{3}; \frac{3}{3} = 1; \frac{4}{3}; \frac{5}{3}; \dots$$

$$\text{Veelvoude van } \frac{1}{4} \text{ (tel in kwarte): } \frac{1}{4}; \frac{2}{4} = \frac{1}{2}; \frac{3}{4}; \frac{4}{4} = 1; \frac{5}{4}; \frac{6}{4}; \dots$$

$$\text{KGV van } \frac{1}{2}, \frac{1}{3} \text{ en } \frac{1}{4} = 1$$

$$13 \quad \text{Ons soek die KGV van } 12, 18 \text{ en } 30$$

$$12 = 2 \times 6 = 2 \times 2 \times 3 \quad 18 = 2 \times 9 = 2 \times 3 \times 3 \quad 30 = 6 \times 5 = 2 \times 3 \times 5$$

$$12 = 2 \times 2 \times 3$$

$$18 = 2 \times 3 \times 3$$

$$30 = 2 \times 3 \times 5$$

KGV = $2 \times 2 \times 3 \times 3 \times 5 = 180$, dus na 180 sekondes sal die 3 klokke weer saam lui.

$$14. \quad 53124 \text{ deelbaar deur } 2, 3, 4, 5 \text{ en } 6$$

- Is deelbaar deur 2, want die laaste syfer is 4 wat ewe is.
- Is deelbaar deur 3, want die som van die syfers is $5 + 3 + 1 + 2 + 4 = 15$ en 15 is deelbaar deur 3
- Is deelbaar deur 4, want die laaste twee syfers gee die getal 24 wat deelbaar is deur 4
- Is nie deelbaar deur 5, want die laaste syfer is nie 'n 0 of 'n 5
- Is deelbaar deur 6, want dit is deelbaar deur beide 2 en 3

$$15. \quad 487245 \text{ deelbaar deur } 2, 3, 4, 5 \text{ en } 6$$

- Is nie deelbaar deur 2, want die laaste syfer is 5 wat nie ewe is nie.
- Is deelbaar deur 3, want die som van die syfers is $4 + 8 + 7 + 2 + 4 + 5 = 30$ en 30 is deelbaar deur 3
- Is nie deelbaar deur 4, want die laaste twee syfers gee die getal 45 wat nie deelbaar is deur 4
- Is deelbaar deur 5, want die laaste syfer is 'n 5
- Is nie deelbaar deur 6, want dit is deelbaar deur beide 3 maar nie deur 2

16.1 1 is 'n priemgetal - verkeerd, want dit het net 1 faktor nie 2 nie.

16.2 12 is 'n veelvoud van 36 - verkeerd, want 36 is 'n veelvoud van 12

16.3 $\sqrt{64+36} = 8+6 = 14$ - verkeerd want $\sqrt{64+36} = \sqrt{100} = 10$

16.4 Die priemfaktore van 24 is 2 en 3 - korrek.

16.5 2 is 'n saamgestelde getal - verkeerd, dit is priem.

16.6 Die GGD of GGF van 5 en 10 is 10 - verkeerd. $F_5 = \{1;5\}$ en $F_{10} = \{1;2;5;10\}$, dus GGF = 5

16.7 Die KGV van 5 en 10 is 10 - korrek. $V_5 = \{5;10;15;20;....\}$ en $V_{10} = \{10;20;30;40;.....\}$. KGV = 10

16.8 Alle onewe getalle is priemgetalle - verkeerd, want bv 9 is onewe maar nie priem nie

$$\begin{array}{r} 2 \overline{)154} \\ 7 \overline{)77} \\ 11 \overline{)11} \\ \underline{1} \end{array} \qquad \begin{array}{r} 2 \overline{)98} \\ 7 \overline{)49} \\ 7 \overline{)7} \\ \underline{1} \end{array}$$

$$154 = 2 \times 7 \times 11$$

$$98 = 2 \times 7 \times 7$$

$$\text{GGF} = 2 \times 7 = 14$$

$$\text{KGV} = 2 \times 7 \times 11 \times 7 = 1078$$

18. $V_{16} = \{16;32;48;64;80;96;112;128;144\}$

$$V_{18} = \{18;36;54;72;90;108;126;144\}$$

$$\text{KGV} = 144$$

Kortste stuk draad is 144cm

Jy kan ook leertjie metode gebruik om KGV te bepaal.

19.

- 2 kan in 2160 indeel want die laaste syfer van die getal is ewe (0)
- 3 kan in 2160 indeel want die som van die syfers is $2+1+6+0 = 9$ en 9 is deelbaar deur 3
- 4 kan in 2160 indeel want die laaste 2 syfers vorm die getal 60 wat deelbaar is deur 4
- 5 kan in 2160 indeel want die laaste syfer van die getal is 0
- 6 kan in 2160 indeel want die getal is deelbaar deur 2 en 3
- 8 kan in 2160 indeel want die laaste 3 syfers vorm die getal 160 wat deelbaar is deur 8
- 9 kan in 2160 indeel want die som van die syfers is $2+1+6+0 = 9$ en 9 is deelbaar deur 9

20. Ons moet die GGF of GGD van 54 en 42 vind. Dit sal die vierkant se sylengte gee, sodat hierdie vierkant presies in die lengte en breedte van die karton sal inpas

$$\begin{array}{r} 2 \overline{)54} \\ 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ \underline{1} \end{array} \qquad \begin{array}{r} 2 \overline{)42} \\ 3 \overline{)21} \\ 7 \overline{)7} \\ \underline{1} \end{array}$$

$$\begin{array}{l} 54 = 2 \times 3 \times 3 \times 3 \\ 42 = 2 \times 3 \times 7 \end{array}$$

GGF of GGD van 54 en 42 is $2 \times 3 = 6$

∴ Die sylengte van die vierkant moet 6cm wees.

21.1 $F_{60} = \{1;2;3;4;5;6;10;12;15;20;30;60\}$

21.2 $PF_{60} = \{2; 3; 5; \}$

21.3 $60^2 = 3600$

21.4 Vierkantsgetalle kleiner as $60 = \{1; 4; 9; 16; 25; 36; 49\}$

22. 2160

2 deel in want 0 is ewe

3 deel in want $2 + 1 + 6 + 0 = 9$ wat deelbaar is deur 3

4 deel nie in nie, want 60 is nie deelbaar deur 4 nie

5 deel in want die laaste syfer is 0

6 deel in want getal is deelbaar deur 2 en 3

8 deel in want 160 is deelbaar deur 8

9 deel in want $2 + 1 + 6 + 0 = 9$ wat deelbaar is deur 9

Hoofstuk 1

Getalle, Bewerkinge en Verwantskappe

Antwoorde 1C: Eksponente en Wetenskapnotasie

$$1.1 \quad 3^5 = 3 \times 3 \times 3 \times 3 \times 3$$

$$1.2 \quad 4^6 = 4 \times 4 \times 4 \times 4 \times 4 \times 4$$

$$1.3 \quad 2^4 \times 7^3 = 2 \times 2 \times 2 \times 2 \times 7 \times 7 \times 7$$

$$1.4 \quad (5^3)^4 = 5^3 \times 5^3 \times 5^3 \times 5^3 \\ = (5 \times 5 \times 5) \times (5 \times 5 \times 5) \times (5 \times 5 \times 5) \times (5 \times 5 \times 5)$$

$$2.1 \quad 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^6$$

$$2.2 \quad 10 \times 10 \times 10 \times 10 = 10^4$$

$$2.3 \quad 3 \times 3 \times 3 \times 3 \times 3 \times 7 \times 7 = 3^5 \times 7^2$$

$$2.4 \quad \frac{5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5}{11 \times 11 \times 11 \times 11} = \frac{5^8}{11^4}$$

$$3.1 \quad 5^3 \times 5^4 = 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 = 5^7$$

$$3.2 \quad \frac{7^5}{7^3} = \frac{7 \times 7 \times 7 \times 7 \times 7}{7 \times 7 \times 7} = \frac{7 \times 7}{1} = \frac{49}{1} = 49$$

$$3.3 \quad \frac{3^3 \cdot 2^4}{2^5 \cdot 3^2} = \frac{3 \times 3 \times 3 \times 2 \times 2 \times 2 \times 2}{2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3} = \frac{3}{2}$$

$$3.4 \quad (5^2)^3 = (5^2)(5^2)(5^2) = 5 \times 5 \times 5 \times 5 \times 5 \times 5 = 5^6$$

$$4.1 \quad 2^{50} \cdot 2^{20} \\ = 2^{70}$$

$$4.2 \quad 3^2 \cdot 2^5 \cdot 3^8 \cdot 2^4 \\ = 3^{10} \cdot 2^9$$

$$4.3 \quad \frac{7^3 \cdot 5^2}{7^5 \cdot 5} \\ = \frac{5}{7^2} \\ = \frac{5}{49}$$

$$4.4 \quad \frac{2^{20} \cdot 3^{100}}{3^{50} \cdot 2^{80}} \\ = \frac{3^{50}}{2^{60}}$$

$$4.5 \quad 3^{11} \div 3^{20} \\ = \frac{3^{11}}{3^{20}} \\ = \frac{1}{3^9}$$

$$4.6 \quad (2^{12} \cdot 2^3) \div (2 \cdot 2^2) \\ = \frac{2^{12} \cdot 2^3}{2^1 \cdot 2^2} \\ = \frac{2^{15}}{2^3} \\ = \frac{2^{12}}{1} \\ = 2^{12}$$

$$4.7 \quad (7^3)^5 \\ = 7^{15}$$

$$4.8 \quad \frac{1}{(2^3)^4} \\ = \frac{1}{2^{12}}$$

$$4.9 \quad (3^2 \cdot 5^3)^2 \\ = 3^4 \cdot 5^6$$

$$4.10 \quad \frac{1}{(2^2 \cdot 7^8)^3} \\ = \frac{1}{2^6 \cdot 7^{24}}$$

$$4.11 \quad 3^0 \cdot 5^2 \\ = 1 \cdot 25 \\ = 25$$

$$4.12 \quad 13^2 \cdot 13 \cdot 13^0 \\ = 13^2 \cdot 13^1 \cdot 1 \\ = 13^3$$

$$4.14 \quad 11^0 \div 11^{-3} \\ = \frac{11^0}{11^{-3}}$$

$$4.13 \quad 5^{-1} \cdot 5^{-3} \cdot 5^{-2} \\ = \frac{1}{5^1 \cdot 5^3 \cdot 5^2} \\ = \frac{1}{5^6}$$

$$= \frac{1}{11^{-3}} \\ = 11^3$$

$$\begin{aligned}
4.15 \quad 5^{-5} \div 5^2 \\
&= \frac{5^{-5}}{5^2} \\
&= \frac{1}{5^2 \cdot 5^5} \\
&= \frac{1}{5^7}
\end{aligned}$$

$$\begin{aligned}
4.16 \quad 13^2 \cdot 13^{-3} \div 13^2 \\
&= 13^2 \cdot \frac{13^{-3}}{13^2} \\
&= \frac{13^2}{1} \cdot \frac{1}{13^3 \cdot 13^2} \\
&= \frac{1}{13^3}
\end{aligned}$$

$$\begin{aligned}
4.17 \quad (2^{-3})^2 \\
&= \left(\frac{1}{2^3}\right)^2 \\
&= \frac{1^2}{(2^3)^2} \\
&= \frac{1}{2^6}
\end{aligned}$$

$$\begin{aligned}
4.18 \quad (3^{-2})^2 \\
&= \left(\frac{1}{3^2}\right)^2 \\
&= \frac{1^2}{(3^2)^2} \\
&= \frac{1}{3^4}
\end{aligned}$$

$$\begin{aligned}
4.19 \quad (5^4 \cdot 2^{-1})^2 \\
&= \left(\frac{5^4}{2^1}\right)^2 \\
&= \frac{(5^4)^2}{(2^1)^2} \\
&= \frac{5^8}{2^2}
\end{aligned}$$

$$\begin{aligned}
4.20 \quad (7^2 \cdot 3^{-3})^2 \\
&= \left(\frac{7^2}{3^3}\right)^2 \\
&= \frac{(7^2)^2}{(3^3)^2} \\
&= \frac{7^4}{3^6}
\end{aligned}$$

$$\begin{aligned}
4.21 \quad (3^2)^2 \cdot 2^{-3} \\
&= 3^4 \cdot 2^{-3} \\
&= \frac{3^4}{2^3} \\
&= \frac{81}{8}
\end{aligned}$$

$$\begin{aligned}
4.22 \quad \frac{1}{3^{-3}} \cdot 3^{-5} \\
&= \frac{1}{3^{-3}} \cdot \frac{3^{-5}}{1} \\
&= \frac{3^3}{3^5} \\
&= \frac{1}{3^2} \\
&= \frac{1}{9}
\end{aligned}$$

$$\begin{aligned}
4.23 \quad 4^3 \cdot 2^4 \\
&= (2^2)^3 \cdot 2^4 \\
&= 2^6 \cdot 2^4 \\
&= 2^{10}
\end{aligned}$$

<u>2/16</u>	<u>5/125</u>	<u>2/48</u>	<u>2/60</u>	<u>3/81</u>
<u>2/8</u>	<u>5/25</u>	<u>2/24</u>	<u>2/30</u>	<u>3/27</u>
<u>2/4</u>	<u>5/5</u>	<u>2/12</u>	<u>3/15</u>	<u>3/9</u>
<u>2/2</u>	<u>/1</u>	<u>2/6</u>	<u>5/5</u>	<u>3/3</u>
<u>/1</u>		<u>3/3</u>	<u>/1</u>	<u>/1</u>
		<u>/1</u>		

$$\begin{aligned}
16 &= 2 \times 2 \times 2 \times 2 & 125 &= 5 \times 5 \times 5 & 48 &= 2 \times 2 \times 2 \times 2 \times 3 & 60 &= 2 \times 2 \times 3 \times 5 & 81 &= 3 \times 3 \times 3 \times 3 \\
&= 2^4 & &= 5^3 & &= 2^4 \cdot 3^1 & &= 2^2 \cdot 3^1 \cdot 5^1 & &= 3^4
\end{aligned}$$

$$4.24 \quad 16^3 \cdot 2^2 = (2^4)^3 \cdot 2^2 = 2^{12} \cdot 2^2 = 2^{14}$$

$$4.25 \quad 125^5 \cdot 5^{-2} = (5^3)^5 \cdot 5^{-2} = \frac{5^{15}}{5^2} = \frac{5^{13}}{1} = 5^{13}$$

$$4.26 \quad 48^4 \cdot 3^2 = (2^4 \cdot 3^1)^4 \cdot 3^2 = 2^{16} \cdot 3^4 \cdot 3^2 = 2^{16} \cdot 3^6$$

$$4.27 \quad 60^8 \cdot 2^{-4} = (2^2 \cdot 3^1 \cdot 5^1)^8 \cdot 2^{-4} = \frac{2^{16} \cdot 3^8 \cdot 5^8}{2^4} = \frac{2^{12} \cdot 3^8 \cdot 5^8}{1} = 2^{12} \cdot 3^8 \cdot 5^8$$

$$4.28 \quad \frac{1}{81^6} \cdot 3^4 = \frac{1}{(3^4)^6} \cdot \frac{3^4}{1} = \frac{1}{3^{24}} \cdot \frac{3^4}{1} = \frac{1}{3^{20}}$$

$$5.1 \quad 2,83 \times 10^3 \\ = 2830$$

$$5.3 \quad 3,025 \times 10^4 \\ = 30250$$

$$5.5 \quad 3,25 \times 10^4 \times 10^{-3} \\ = 3,25 \times 10^1 \\ = 32,5$$

$$6.1 \quad 10000 \\ = 10000,0 \\ = 1,0 \times 10^4$$

$$6.3 \quad 125,346 \\ = 1,25346 \times 10^2$$

$$6.5 \quad \frac{23,457}{10^{-2}} \\ = 23,457 \times 10^2 \\ = 2,3457 \times 10^{2+1} \\ = 2,3457 \times 10^3$$

$$5.7 \quad 365,342 \times 10^3 \\ = 3,65342 \times 10^{3+2} \\ = 3,65342 \times 10^5$$

$$7. \quad \frac{3,56 \times 10^{-8}}{200 \times 10^{-3}} = 0,000000178 = 1,78 \times 10^{-7}$$

$$8.1 \quad \frac{2^{100} \times 2^{50}}{2^{140}} \\ = \frac{2^{100+50}}{2^{140}} \\ = \frac{2^{150}}{2^{140}} \\ = 2^{10}$$

$$9. \quad \sqrt[5]{\frac{20+0,34}{200-25,05}} + 8 = 8,650260 \dots \approx 8,65$$

$$10. \quad 0,000058346 \times 10^8 = 5,8346 \times 10^{8-5} = 5,8346 \times 10^3$$

$$11. \quad 5,026 \times 10^3 = 5026$$

$$12. \quad 0,0038 = 3,8 \times 10^{-3}$$

$$5.2 \quad 1,38 \times 10^{-2} \\ = 0,0138$$

$$5.4 \quad 5,7 \times 10^{-1} \\ = 0,57$$

$$5.6 \quad \frac{5,75 \times 10^{-2}}{10^{-4}} \\ = \frac{5,75 \times 10^4}{10^2} \\ = \frac{5,75 \times 10^2}{1} \\ = 5,75 \times 10^2 \\ = 575$$

$$6.2 \quad 0,0876 \\ = 8,76 \times 10^{-2}$$

$$6.4 \quad 0,00003 \\ = 3,0 \times 10^{-5}$$

$$6.6 \quad 235,65 \times 10^{-4} \times 10^3 \times 10 \\ = 235,65 \times 10^{-4+3+1} \\ = 235,65 \times 10^0 \\ = 2,3565 \times 10^{0+2} \\ = 2,3565 \times 10^2$$

$$6.8 \quad 0,000456 \times 10^8 \\ = 4,56 \times 10^{8-4} \\ = 4,56 \times 10^4$$

$$8.2 \quad (2^3 \cdot 3^2)^4 \\ = 2^{3 \times 4} \cdot 3^{2 \times 4} \\ = 2^{12} \cdot 3^8$$

$$\begin{aligned} 13. \quad & \frac{3 \times 10^7 \times 14 \times 10^2}{21 \times 10^5} \\ &= \frac{3 \times 2 \times 7 \times 10^7 \times 10^2}{3 \times 7 \times 10^5} \\ &= \frac{2 \times 10^9}{10^5} \\ &= 2,0 \times 10^4 \end{aligned}$$

$$\begin{aligned} 15. \quad & \frac{2^{-2}}{3^{-2}} \\ &= \frac{3^2}{2^2} \\ &= \frac{9}{4} \end{aligned}$$

$$\begin{aligned} 14.1 \quad & \frac{2^{100} \times 2^{50}}{2^{120}} \\ &= \frac{2^{150}}{2^{120}} \\ &= 2^{30} \end{aligned}$$

$$\begin{aligned} 14.2 \quad & (2^3 \cdot 3^2)^4 \\ &= 2^{12} \cdot 3^8 \end{aligned}$$

Hoofstuk 1

Getalle, Bewerkinge en Verwantskappe

Antwoorde 1D: Magte en wortels

1. $\sqrt{64}$
 $= \sqrt{8^2}$
 $= 8^{\frac{2}{2}}$
 $= 8$
2. $\sqrt{4} + \sqrt{9}$
 $= \sqrt{2^2} + \sqrt{3^2}$
 $= 2^{\frac{2}{2}} + 3^{\frac{2}{2}}$
 $= 2 + 3 = 5$
3. $3\sqrt{36}$
 $= 3\sqrt{6^2}$
 $= 3 \cdot 6^{\frac{2}{2}}$
 $= 3 \cdot 6 = 18$
4. $4\sqrt{9} + \sqrt{36} \div 2$
 $= 4 \cdot \sqrt{3^2} + \sqrt{6^2} \div 2$
 $= 4 \cdot 3^{\frac{2}{2}} + 6^{\frac{2}{2}} \div 2$
 $= 4 \cdot 3 + 6 \div 2$
 $= 12 + 3 = 15$
5. $\sqrt{2\frac{7}{9}}$
 $= \sqrt{\frac{25}{9}}$
 $= \frac{\sqrt{5^2}}{\sqrt{3^2}}$
 $= \frac{5^{\frac{2}{2}}}{3^{\frac{2}{2}}}$
 $= \frac{5}{3}$
6. $\sqrt{3^2 + 4^2}$
 $= \sqrt{9 + 16}$
 $= \sqrt{25}$
 $= \sqrt{5^2}$
 $= 5^{\frac{2}{2}}$
 $= 5$
7. $\sqrt{25 \times 4 \times 36}$
 $= \sqrt{5^2} \times \sqrt{2^2} \times \sqrt{6^2}$
 $= 5^{\frac{2}{2}} \times 2^{\frac{2}{2}} \times 6^{\frac{2}{2}}$
 $= 5 \times 2 \times 6$
 $= 60$
8. $\sqrt{\sqrt{81}}$
 $= \sqrt{\sqrt{9^2}}$
 $= \sqrt{9^{\frac{2}{2}}}$
 $= \sqrt{9}$
 $= \sqrt{3^2}$
 $= 3^{\frac{2}{2}} = 3$
9. $\sqrt{0,0025}$
 $= \sqrt{\frac{25}{10000}}$
 $= \sqrt{\frac{1}{400}}$
 $= \frac{\sqrt{1}}{\sqrt{20^2}}$
 $= \frac{1}{20}$
10. $(2 \times 3)^2$
 $= (6)^2$
 $= 36$
11. $\sqrt[3]{27}$
 $= \sqrt[3]{(3)^3}$
 $= (3)^{\frac{3}{3}}$
 $= 3$
12. $\sqrt[3]{64} + \sqrt{36}$
 $= \sqrt[3]{4^3} + \sqrt{6^2}$
 $= 4^{\frac{3}{3}} + 6^{\frac{2}{2}}$
 $= 4 + 6 = 10$
13. $2^3 + 1^3$
 $= 8 + 1$
 $= 9$
14. $\sqrt[3]{3^6 \cdot 2^3}$
 $= 3^{\frac{6}{3}} \cdot 2^{\frac{3}{3}}$
 $= 3^2 \cdot 2$
 $= 9 \cdot 2 = 18$
15. $\sqrt{49} \times \sqrt[3]{8}$
 $= \sqrt{7^2} \times \sqrt[3]{2^3}$
 $= 7^{\frac{2}{2}} \times 2^{\frac{3}{3}} = 7 \times 2 = 14$
16. $(6 - 2)^3 + (11 - 7)^3$
 $= (4)^3 + (4)^3$
 $= 64 + 64 = 128$
17. $\sqrt{\sqrt[3]{64}}$

$$= \sqrt{\sqrt[3]{4^3}}$$

$$= \sqrt{4^{\frac{3}{3}}}$$

$$= \sqrt{4}$$

$$= \sqrt{2^2}$$

$$= 2^{\frac{2}{2}} = 2$$

$$19. \quad 4\sqrt[3]{8} - 2\sqrt{16}$$

$$= 4 \cdot \sqrt[3]{2^3} - 2 \cdot \sqrt{4^2}$$

$$= 4 \cdot 2^{\frac{3}{3}} - 2 \cdot 4^{\frac{2}{2}}$$

$$= 4 \cdot 2 - 2 \cdot 4$$

$$= 8 - 8 = 0$$

$$21. \quad \sqrt{36} \times \sqrt{4} + \sqrt[3]{27} - \sqrt{1}$$

$$= \sqrt{6^2} \times \sqrt{2^2} + \sqrt[3]{3^3} - \sqrt{1}$$

$$= 6 \times 2 + 3 - 1$$

$$= 12 + 2 = 14$$

$$23. \quad \sqrt{3} \cdot \sqrt{3} \cdot \sqrt{3} \cdot \sqrt{3}$$

$$= (\sqrt{3})^2 \cdot (\sqrt{3})^2$$

$$= 3 \cdot 3 = 9$$

$$25. \quad \frac{\sqrt{144}}{4}$$

$$= \frac{\sqrt{12^2}}{4}$$

$$= \frac{12}{4} = 3$$

$$28. \quad (\sqrt{5})^2 + (2\sqrt{3})^2$$

$$= 5 + 4 \cdot 3$$

$$= 5 + 12 = 17$$

$$18. \quad \sqrt{4} (\sqrt{4} + \sqrt[3]{8})$$

$$= \sqrt{2^2} (\sqrt{2^2} + \sqrt[3]{2^3})$$

$$= 2^{\frac{2}{2}} (2^{\frac{2}{2}} + 2^{\frac{3}{3}})$$

$$= 2(2 + 2)$$

$$= 2(4) = 8$$

$$20. \quad 2\sqrt[3]{125}$$

$$= 2 \cdot \sqrt[3]{(5)^3}$$

$$= 2 \cdot (5^{\frac{3}{3}})$$

$$= 2 \cdot 5$$

$$= 10$$

$$22. \quad ((\sqrt{4})^2)^3$$

$$= ((\sqrt{4})^2)^3$$

$$= (4)^3$$

$$= 64$$

$$24. \quad \sqrt{-9}$$

geen \mathbb{R} oplossing

$$26. \quad \sqrt{\frac{18}{50}}$$

$$= \sqrt{\frac{9}{25}}$$

$$= \frac{\sqrt{3^2}}{\sqrt{5^2}}$$

$$= \frac{3}{5}$$

$$27. \quad \sqrt{3\frac{3}{5} - 1\frac{1}{25}}$$

$$= \sqrt{\frac{18}{5} - \frac{26}{25}}$$

$$= \sqrt{\frac{90-26}{25}}$$

$$= \sqrt{\frac{64}{25}}$$

$$= \frac{\sqrt{8^2}}{\sqrt{5^2}} = \frac{8}{5}$$

$$\begin{aligned}
29. \quad & \sqrt[5]{25^5} + (2)^5 - (\sqrt[8]{8})^8 - (5-4)^{100} \\
& = 25^{\frac{5}{5}} + 32 - 8^{\frac{8}{8}} - 1^{100} \\
& = 25 + 32 - 8 - 1 = 48
\end{aligned}$$

$$\begin{aligned}
30. \quad & \sqrt{7056} && 2 \mid 7056 \\
& = \sqrt{2^4 \cdot 3^2 \cdot 7^2} && 2 \mid 3528 \\
& = 2^{\frac{4}{2}} \cdot 3^{\frac{2}{2}} \cdot 7^{\frac{2}{2}} && 2 \mid 1764 \\
& = 2^2 \cdot 3 \cdot 7 && 2 \mid 882 \\
& = 4 \cdot 3 \cdot 7 && 3 \mid 441 \\
& = 84 && 3 \mid 147 \\
& && 7 \mid 49 \\
& && 7 \mid 7 \\
& && \mid 1
\end{aligned}$$

$$\begin{aligned}
31. \quad & \sqrt[3]{2744} && 2 \mid 2744 \\
& = \sqrt[3]{2^3 \cdot 7^3} && 2 \mid 1372 \\
& = 2^{\frac{3}{3}} \cdot 7^{\frac{3}{3}} && 2 \mid 686 \\
& = 2 \cdot 7 && 7 \mid 343 \\
& = 14 && 7 \mid 49 \\
& && 7 \mid 7 \\
& && \mid 1
\end{aligned}$$

$$\begin{aligned}
32. \quad & \sqrt{1024} && 2 \mid 1024 \\
& = \sqrt{2^{10}} && 2 \mid 512 \\
& = 2^{\frac{10}{2}} && 2 \mid 256 \\
& = 2^5 && 2 \mid 128 \\
& = 32 && 2 \mid 64 \\
& && 2 \mid 32 \\
& && 2 \mid 16 \\
& && 2 \mid 8 \\
& && 2 \mid 4 \\
& && 2 \mid 2 \\
& && \mid 1
\end{aligned}$$

$$\begin{aligned}
33. \quad & \sqrt[3]{3375} && 3 \mid 3375 \\
& = \sqrt[3]{3^3 \cdot 5^3} && 3 \mid 1125 \\
& = 3^{\frac{3}{3}} \cdot 5^{\frac{3}{3}} && 3 \mid 375 \\
& = 3 \cdot 5 && 5 \mid 125 \\
& = 15 && 5 \mid 25 \\
& && 5 \mid 5 \\
& && \mid 1
\end{aligned}$$

$$\begin{aligned}
34.1 \quad & \sqrt{16+9} \\
& = \sqrt{25} \\
& = 5
\end{aligned}$$

$$\begin{aligned}
34.2 \quad & \sqrt{36 \cdot 64} \\
& = \sqrt{36} \cdot \sqrt{64} \\
& = 6 \cdot 8 \\
& = 48
\end{aligned}$$

$$\begin{aligned}
34.3 \quad & \sqrt[3]{3^6 \cdot 2^9} \\
& = 3^{\frac{6}{3}} \cdot 2^{\frac{9}{3}} \\
& = 3^2 \cdot 2^3 \\
& = 9 \cdot 8 \\
& = 72
\end{aligned}$$

$$\begin{aligned}
34.4 \quad & \sqrt{(161)^2} \\
& = 161^{\frac{2}{2}} \\
& = 161
\end{aligned}$$

$$\begin{aligned}
34.5 \quad & \sqrt[3]{5^3} \\
& = 5
\end{aligned}$$

$$\begin{aligned}
34.6 \quad & 1^5 + 1^4 \\
& = 1 + 1 \\
& = 2
\end{aligned}$$

$$34.7 \quad 2^3 \cdot 3^2$$

$$= 8 \cdot 9$$

$$= 72$$

$$34.8 \quad \frac{2^{-3}}{3^{-2}}$$

$$= \frac{3^2}{2^3}$$

$$= \frac{9}{8}$$

$$35.1 \quad \sqrt{9801} \quad 3 \overline{)9801}$$

$$= \sqrt{3^4 \cdot 11^2} \quad 3 \overline{)3267}$$

$$= 3^{\frac{4}{2}} \cdot 11^{\frac{2}{2}} \quad 3 \overline{)1089}$$

$$= 3^2 \cdot 11 \quad 3 \overline{)363}$$

$$= 9 \cdot 11 \quad 11 \overline{)121}$$

$$= 99 \quad 11 \overline{)11}$$

$$\quad \quad \quad \underline{1}$$

$$35.2 \quad \sqrt[3]{1728} \quad 2 \overline{)1728}$$

$$= \sqrt[3]{2^6 \cdot 3^3} \quad 2 \overline{)864}$$

$$= 2^{\frac{6}{3}} \cdot 3^{\frac{3}{3}} \quad 2 \overline{)432}$$

$$= 2^2 \cdot 3 \quad 2 \overline{)216}$$

$$= 4 \cdot 3 \quad 2 \overline{)108}$$

$$= 12 \quad 2 \overline{)54}$$

$$\quad \quad \quad 3 \overline{)27}$$

$$\quad \quad \quad \quad 3 \overline{)9}$$

$$\quad \quad \quad \quad \quad 3 \overline{)3}$$

$$\quad \quad \quad \quad \quad \quad \underline{1}$$

$$35.3 \quad \sqrt{21 \times 18 \times 42}$$

$$= \sqrt{3 \times 7 \times 2 \times 3^2 \times 2 \times 3 \times 7}$$

$$= \sqrt{3^4 \times 7^2 \times 2^2}$$

$$= 3^{\frac{4}{2}} \cdot 7^{\frac{2}{2}} \cdot 2^{\frac{2}{2}}$$

$$= 3^2 \cdot 7 \cdot 2$$

$$= 9 \cdot 7 \cdot 2$$

$$= 126$$

$$3 \overline{)21} \quad 2 \overline{)18} \quad 2 \overline{)42}$$

$$7 \overline{)7} \quad 3 \overline{)9} \quad 3 \overline{)21}$$

$$\underline{1} \quad 3 \overline{)3} \quad 7 \overline{)7}$$

$$\quad \quad \quad \underline{1} \quad \quad \underline{1}$$

$$36. \quad \sqrt{2916}$$

$$= \sqrt{2^2 \cdot 3^6}$$

$$= 2^{\frac{2}{2}} \cdot 3^{\frac{6}{2}}$$

$$= 2 \cdot 3^3$$

$$= 2 \cdot 27$$

$$= 54$$

$$2 \overline{)2916}$$

$$2 \overline{)1458}$$

$$3 \overline{)729}$$

$$3 \overline{)243}$$

$$\quad 3 \overline{)81}$$

$$\quad \quad 3 \overline{)27}$$

$$\quad \quad \quad 3 \overline{)9}$$

$$\quad \quad \quad \quad 3 \overline{)3}$$

$$\quad \quad \quad \quad \quad \underline{1}$$

$$37. \quad \sqrt[3]{5832}$$

$$= \sqrt[3]{2^3 \cdot 3^6}$$

$$= 2^{\frac{3}{3}} \cdot 3^{\frac{6}{3}}$$

$$= 2 \cdot 3^2$$

$$= 2 \cdot 9$$

$$= 18$$

$$2 \overline{)5832}$$

$$2 \overline{)2916}$$

$$\quad 2 \overline{)1458}$$

$$\quad \quad 3 \overline{)729}$$

$$\quad \quad \quad 3 \overline{)243}$$

$$\quad \quad \quad \quad 3 \overline{)81}$$

$$\quad \quad \quad \quad \quad 3 \overline{)27}$$

$$\quad \quad \quad \quad \quad \quad 3 \overline{)9}$$

$$\quad \quad \quad \quad \quad \quad \quad 3 \overline{)3}$$

$$\quad \quad \quad \quad \quad \quad \quad \quad \underline{1}$$

$$38.1 \quad \sqrt[3]{-64} + 3^3$$

$$38.2 \quad 2187 \div 3^3 \quad 3 \overline{)2187}$$

$$\begin{aligned}
&= \sqrt[3]{(-4)^3} + 27 &= \frac{2187}{3^3} & 3 \mid 729 \\
&= -4 + 27 &= \frac{3^7}{3^3} & 3 \mid 243 \\
&= 23 &= 3^4 & 3 \mid 81 \\
& &= 81 & 3 \mid 27
\end{aligned}$$

$$\begin{aligned}
38.3 \quad &(-8 \times 2)^2 - (8 + 2)^2 && 3 \mid 9 \\
&= (-16)^2 - (16)^2 && 3 \mid 3 \\
&= 256 - 256 && \mid 1 \\
&= 0
\end{aligned}$$

$$\begin{aligned}
38.5 \quad &\sqrt[3]{0,008} \\
&= \sqrt[3]{\frac{8}{1000}} \\
&= \frac{\sqrt[3]{1}}{\sqrt[3]{125}} \\
&= \frac{1}{\sqrt[3]{5^3}} \\
&= \frac{1}{5}
\end{aligned}$$

$$\begin{aligned}
38.4 \quad &(-6 - 1)^2 - \sqrt[3]{8} \\
&= (-7)^2 - \sqrt[3]{2^3} \\
&= 49 - 2 \\
&= 47
\end{aligned}$$

$$\begin{aligned}
38.6 \quad &\sqrt{0,16} + \frac{3}{5} \\
&= \sqrt{\frac{16 \div 4}{100 \div 4}} + \frac{3}{5} \\
&= \sqrt{\frac{4}{25}} + \frac{3}{5} \\
&= \frac{2}{5} + \frac{3}{5} \\
&= \frac{2+3}{5} \\
&= \frac{5}{5} \\
&= 1
\end{aligned}$$

$$\begin{aligned}
38.7 \quad &\sqrt{2^4 + 3^2} \\
&= \sqrt{16 + 9} \\
&= \sqrt{25} \\
&= \sqrt{5^2} \\
&= 5
\end{aligned}$$

$$\begin{aligned}
38.8 \quad &1^3 \times (-4)^3 \div (2 \times 2^2) \\
&= 1 \times \frac{-64}{8} \\
&= 1 \times -8 \\
&= -8
\end{aligned}$$

$$\begin{aligned}
38.9 \quad &\sqrt{4 \times (-10)^2 - (4 \times -3)^2} \\
&= \sqrt{4 \times 100 - (-12)^2} \\
&= \sqrt{400 - 144} \\
&= \sqrt{256} \\
&= \sqrt{16^2} \\
&= 16
\end{aligned}$$

$$\begin{aligned}
38.10 \quad &\frac{\sqrt[3]{125} - \sqrt{16}}{2^5 - (3^3 + 2^2)} \\
&= \frac{\sqrt[3]{5^3} - \sqrt{4^2}}{32 - (27 + 4)} \\
&= \frac{5 - 4}{32 - 31} \\
&= \frac{1}{1} \\
&= 1
\end{aligned}$$

$$\begin{aligned}
38.11 \quad &\sqrt[3]{\frac{125}{216}} + \frac{1}{6} \\
&= \sqrt[3]{\frac{5^3}{6^3}} + \frac{1}{6} \\
&= \frac{5}{6} + \frac{1}{6} \\
&= \frac{6}{6} \\
&= 1
\end{aligned}$$

$$38.12 \quad (-1)^{10} + 5 - 3 = 1 + 5 - 3 = 3$$

$$38.13 \quad \sqrt[3]{2^{15} \cdot 3^{27}} = 2^{15 \div 3} \cdot 3^{27 \div 3} = 2^5 \cdot 3^9$$

Meer oor “Wiskunde Anibrand Antwoordboek Graad 8” en die outeur.

Ek is reeds vir 28 jaar betrokke by Wiskunde-onderrig vir graad 8 tot graad 12 leerders. Die afgelope 10 jaar is ek verbonde aan Hoërskool Die Wilgers in Pretoria, waar ek ‘n Wiskunde Akademie bedryf met een groep in elke graad.

Met die aanvang van die nuwe KABV sillabus in 2007 het ek begin om al my notas vir my Wiskunde-onderrig elektronies saam te stel met behulp van innoverende sagteware sodat dit alle onderwerpe met grafika en voorbeelde volledig verduidelik. Die graad 8 Wiskunde Anibrand Antwoordboek bied volledig uitgewerkte, verduidelikende antwoorde vir al die huiswerk probleme in die graad 8 “Wiskunde Anibrand Notaboek”.

Leerders wat hierdie boek gebruik om hulle huiswerk probleme te merk, kan uit die antwoorde self sien waar hulle gefouteer het en dan hulle foute korrigeer.

Ek gebruik hierdie antwoorde die afgelope 5 jaar in my klasaanbieding vir die graad 8 leerders. Dit stel my in staat om die antwoorde konstant te verbeter, soos wat ek dit in die klassituasie as nodig ervaar.

Die volledige antwoorde op huiswerkprobleme help leerders om selfvertroue in die vak te kry want hulle kan hulle probleme identifiseer wanneer hulle huiswerk doen, dit uitsorteer en dan voortgaan met die res van die huiswerk probleme.

Hierdie boek, saam met die Notaboek, is die antwoord vir alle graad 8 leerders wat wil presteer in Wiskunde en ook vir alle Wiskunde onderwysers wat sonder moeite ‘n kwaliteit Wiskunde klasaanbieding vir leerders wil bied.

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