

Hoofdstuk 1

1.1 a		b
222		1 23
873		1578
112		9553
1718		7218
157		212
<u>3461</u>	+	<u>4139</u>
6321		22700

1.2a		b		c
-1-1		-1-1		-1-1-1
9134		4585		7033
<u>4319</u>	-	<u>3287</u>	-	<u>1398</u>
4815		1298		5635

1.3	a	b	c	d	e
	34	67	61	55	78
	<u>89</u> x	<u>46</u> x	<u>93</u> x	<u>11</u> x	<u>38</u> x
	306	402	183	55	624
	2720 +	2680 +	5490 +	550 +	2340 +
	<u>3026</u>	<u>3082</u>	<u>5673</u>	<u>605</u>	<u>2964</u>

1.4	a	b	c	d	e
	354	67	461	655	178
	<u>83</u> x	<u>546</u> x	<u>79</u> x	<u>102</u> x	<u>398</u> x
	1062	402	4149	1310	1424
	28320 +	2680	32270 +	0000	16020
	<u>29382</u>	<u>33500</u> +	<u>36419</u>	<u>65500</u> +	<u>53400</u>
		<u>36582</u>		<u>66810</u>	<u>70844</u>

1.5a	b	c	d	e
$13/154 \setminus 11 \frac{11}{13}$	$27/435 \setminus 16 \frac{3}{27}$	$23/631 \setminus 27 \frac{10}{23}$	$17/467 \setminus 27 \frac{8}{17}$	$37/780 \setminus 21 \frac{3}{37}$
<u>13</u>	<u>27</u>	<u>46</u>	<u>34</u>	<u>74</u>
24	165	171	127	40
<u>13</u>	<u>162</u>	<u>161</u>	<u>119</u>	<u>37</u>
11	3	10	8	3

1.6a	b	c	d	e
$53/2334 \setminus 44 \frac{2}{53}$	$101/6463 \setminus 63 \frac{100}{101}$	$59/7682 \setminus 130 \frac{12}{59}$	$451/6178 \setminus 13 \frac{315}{451}$	$67/5811 \setminus 86 \frac{49}{67}$
<u>212</u>	<u>606</u>	<u>59</u>	<u>451</u>	<u>536</u>
214	403	178	1668	451
<u>212</u>	<u>303</u>	<u>177</u>	<u>1353</u>	<u>402</u>
2	100	12	315	49
		<u>0</u>		
		12		

1.7a

$$11/15457 \setminus 1405 \frac{2}{11}$$

$$\begin{array}{r} \underline{11} \\ 44 \\ \underline{44} \\ 05 \\ \underline{0} \\ 57 \\ \underline{55} \\ 2 \end{array}$$

b

$$97/4534 \setminus 46 \frac{72}{97}$$

$$\begin{array}{r} \underline{388} \\ 654 \\ \underline{582} \\ 72 \end{array}$$

c

$$23/63321 \setminus 2753 \frac{2}{23}$$

$$\begin{array}{r} \underline{46} \\ 173 \\ \underline{161} \\ 122 \\ \underline{115} \\ 71 \\ \underline{69} \\ 2 \end{array}$$

d

$$179/56467 \setminus 315 \frac{82}{179}$$

$$\begin{array}{r} \underline{537} \\ 276 \\ \underline{179} \\ 977 \\ \underline{895} \\ 82 \end{array}$$

e

$$307/78620 \setminus 256 \frac{28}{307}$$

$$\begin{array}{r} \underline{614} \\ 1722 \\ \underline{1535} \\ 1870 \\ \underline{1842} \\ 28 \end{array}$$

1.8a

$$41/42334 \setminus 1032 \frac{22}{41}$$

$$\begin{array}{r} \underline{41} \\ 13 \\ \underline{03} \\ 133 \\ \underline{123} \\ 104 \\ \underline{82} \\ 22 \end{array}$$

b

$$101/13467 \setminus 133 \frac{34}{101}$$

$$\begin{array}{r} \underline{101} \\ 336 \\ \underline{303} \\ 337 \\ \underline{303} \\ 34 \end{array}$$

c

$$99/35641 \setminus 360 \frac{1}{99}$$

$$\begin{array}{r} \underline{297} \\ 594 \\ \underline{594} \\ 01 \\ \underline{0} \\ 1 \end{array}$$

d

$$215/16155 \setminus 75 \frac{30}{215}$$

$$\begin{array}{r} \underline{1505} \\ 1105 \\ \underline{1075} \\ 30 \end{array}$$

e

$$83/92183 \setminus 1110 \frac{53}{83}$$

$$\begin{array}{r} \underline{83} \\ 91 \\ \underline{83} \\ 88 \\ \underline{83} \\ 53 \\ \underline{0} \\ 53 \end{array}$$

1.9

a

$$\begin{array}{r} \underline{24} \quad 2 \\ \underline{12} \quad 2 \\ \underline{6} \quad 2 \\ \underline{3} \quad 3 \\ 1 \end{array}$$

b

$$\begin{array}{r} \underline{72} \quad 2 \\ \underline{36} \quad 2 \\ \underline{18} \quad 2 \\ \underline{9} \quad 3 \\ \underline{3} \quad 3 \\ 1 \end{array}$$

c

$$\begin{array}{r} \underline{250} \quad 2 \\ \underline{125} \quad 5 \\ \underline{25} \quad 5 \\ \underline{5} \quad 5 \\ 1 \end{array}$$

d

$$\begin{array}{r} \underline{96} \quad 2 \\ \underline{48} \quad 2 \\ \underline{24} \quad 2 \\ \underline{12} \quad 2 \\ \underline{6} \quad 2 \\ \underline{3} \quad 3 \\ 1 \end{array}$$

e

$$\begin{array}{r} \underline{98} \quad 2 \\ \underline{49} \quad 7 \\ \underline{7} \quad 7 \\ 1 \end{array}$$

a = 2x2x2x3 = 2<sup>3</sup>x3  
 b = 2x2x2x3x3 = 2<sup>3</sup>x3<sup>2</sup>  
 c = 2x5x5x5 = 2x5<sup>3</sup>  
 d = 2x2x2x2x2x3 = 2<sup>5</sup>x3  
 e = 2x7x7 = 2x7<sup>2</sup>

1.10

a	b	c	d	e	
$\begin{array}{r} 288 \\ \underline{144} \\ 72 \\ \underline{36} \\ 18 \\ \underline{9} \\ 3 \\ \underline{3} \\ 1 \end{array}$	$\begin{array}{r} 1024 \\ \underline{512} \\ 256 \\ \underline{128} \\ 64 \\ \underline{32} \\ 16 \\ \underline{8} \\ 4 \\ \underline{2} \\ 1 \end{array}$	$\begin{array}{r} 315 \\ \underline{105} \\ 35 \\ \underline{7} \\ 1 \end{array}$	$\begin{array}{r} 396 \\ \underline{198} \\ 99 \\ \underline{33} \\ 11 \\ \underline{1} \end{array}$	$\begin{array}{r} 1875 \\ \underline{625} \\ 125 \\ \underline{25} \\ 5 \\ \underline{5} \\ 1 \end{array}$	$a = 2^5 \times 3^2$ $b = 2^{10}$ $c = 3^2 \times 5 \times 7$ $d = 2^2 \times 3^2 \times 11$ $e = 3 \times 5^4$

1.11

a	b	c	d	e	
$\begin{array}{r} 972 \\ \underline{486} \\ 243 \\ \underline{81} \\ 27 \\ \underline{9} \\ 3 \\ \underline{3} \\ 1 \end{array}$	$\begin{array}{r} 676 \\ \underline{338} \\ 169 \\ \underline{13} \\ 1 \end{array}$	$\begin{array}{r} 2025 \\ \underline{675} \\ 225 \\ \underline{75} \\ 25 \\ \underline{5} \\ 1 \end{array}$	$\begin{array}{r} 1122 \\ \underline{561} \\ 187 \\ \underline{17} \\ 1 \end{array}$	$\begin{array}{r} 860 \\ \underline{430} \\ 215 \\ \underline{43} \\ 1 \end{array}$	$a = 2^2 \times 3^5$ $b = 2^2 \times 13^2$ $c = 3^4 \times 5^2$ $d = 2 \times 3 \times 11 \times 17$ $e = 2^2 \times 5 \times 43$

1.12

a	b	c	d	e	
$\begin{array}{r} 255 \\ \underline{85} \\ 17 \\ \underline{1} \end{array}$	$\begin{array}{r} 441 \\ \underline{147} \\ 49 \\ \underline{7} \\ 1 \end{array}$	$\begin{array}{r} 722 \\ \underline{361} \\ 19 \\ \underline{19} \\ 1 \end{array}$	$\begin{array}{r} 432 \\ \underline{216} \\ 108 \\ \underline{54} \\ 27 \\ \underline{9} \\ 3 \\ \underline{3} \\ 1 \end{array}$	$\begin{array}{r} 985 \\ \underline{197} \\ 1 \end{array}$	$a = 3 \times 5 \times 17$ $b = 3^2 \times 7^2$ $c = 2 \times 19^2$ $d = 2^4 \times 3^3$ $e = 5 \times 197$

1.13

a	b	c	d	e	
$\begin{array}{r} 2000 \\ \underline{1000} \\ 500 \\ \underline{250} \\ 125 \\ \underline{25} \\ 5 \\ \underline{5} \\ 1 \end{array}$	$\begin{array}{r} 2001 \\ \underline{667} \\ 29 \\ \underline{1} \end{array}$	$\begin{array}{r} 2002 \\ \underline{1001} \\ 143 \\ \underline{13} \\ 1 \end{array}$	2003	$\begin{array}{r} 2004 \\ \underline{1002} \\ 501 \\ \underline{167} \\ 1 \end{array}$	$a = 2^4 \times 5^3$ $b = 3 \times 23 \times 29$ $c = 2 \times 7 \times 11 \times 13$ $d = 2003$ (priem) $e = 2^2 \times 3 \times 167$

1.15 } zie antwoorden in wiskunde boek  
 1.16 }

1.17

A  $\text{ggd}(12,30) = (2 \times 2 \times 3, 2 \times 3 \times 5) = (2^2 \times 3, 2 \times 3 \times 5) = 2 \times 3 = 6$

B  $\text{ggd}(24,84) = (2 \times 2 \times 2 \times 3, 2 \times 2 \times 3 \times 7) = (2^3 \times 3, 2^2 \times 3 \times 7) = 2^2 \times 3 = 12$

C  $\text{ggd}(27,45) = (3 \times 3 \times 3, 3 \times 3 \times 5) = (3^3, 3^2 \times 5) = 3^2 = 9$

D  $\text{ggd}(32,56) = (2 \times 2 \times 2 \times 2 \times 2, 2 \times 2 \times 2 \times 7) = (2^5, 2^3 \times 7) = 2^3 = 8$

E  $\text{ggd}(34,85) = (2 \times 17, 5 \times 17) = 17$

1.18

A  $\text{ggd}(45,225) = (3 \times 3 \times 5, 3 \times 3 \times 5 \times 5) = (3^2 \times 5, 3^2 \times 5^2) = 3^2 \times 5 = 45$

B  $\text{ggd}(144,216) = (2 \times 2 \times 2 \times 2 \times 3 \times 3, 2 \times 2 \times 2 \times 3 \times 3 \times 3) = (2^4 \times 3^2, 2^3 \times 3^3) = 2^3 \times 3^2 = 72$

C  $\text{ggd}(90,196) = (2 \times 3 \times 3 \times 5, 2 \times 2 \times 7 \times 7) = (2 \times 3^2 \times 5, 2^2 \times 7^2) = 2$

D  $\text{ggd}(243,135) = (3 \times 3 \times 3 \times 3 \times 3, 3 \times 3 \times 3 \times 5) = (3^5, 3^3 \times 5) = 3^3 = 27$

E  $\text{ggd}(288,168) = (2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3, 2 \times 2 \times 2 \times 3 \times 7) = (2^5 \times 3^2, 2^3 \times 3 \times 7) = 2^3 \times 3 = 24$

1.19

A  $\text{ggd}(1024,864) = (2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2, 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3) = (2^{10}, 2^5 \times 3^3) = 2^5 = 32$

B  $\text{ggd}(1122,1815) = (2 \times 3 \times 11 \times 17, 3 \times 5 \times 11 \times 11) = (2 \times 3 \times 11 \times 17, 3 \times 5 \times 11^2) = 3 \times 11 = 33$

C  $\text{ggd}(875,1125) = (5 \times 5 \times 5 \times 7, 3 \times 3 \times 5 \times 5 \times 5) = (5^3 \times 7, 3^2 \times 5^3) = 5^3 = 125$

D  $\text{ggd}(1960,6370) = (2 \times 2 \times 2 \times 5 \times 7 \times 7, 2 \times 5 \times 7 \times 7 \times 13) = (2^3 \times 5 \times 7^2, 2 \times 5 \times 7^2 \times 13) = 2 \times 5 \times 7^2 = 490$

E  $\text{ggd}(1024,1152) = (2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2, 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3) = (2^{10}, 2^7 \times 3^2) = 2^7 = 128$

1.20

A  $\text{ggd}(1243,1244) = (11 \times 113, 2 \times 2 \times 311) = (11 \times 113, 2^2 \times 311) = \text{geen overeenkomsten dus} = 1$

B  $\text{ggd}(1721,1726) = (1721, 2 \times 863) = \text{geen overeenkomsten dus} = 1$

C  $\text{ggd}(875,900) = (5 \times 5 \times 5 \times 7, 2 \times 2 \times 3 \times 3 \times 5 \times 5) = (5^3 \times 7, 2^2 \times 3^2 \times 5^2) = 5^2 = 25$

D  $\text{ggd}(1960,5880) = (2 \times 2 \times 2 \times 5 \times 7 \times 7, 2 \times 2 \times 2 \times 3 \times 5 \times 7 \times 7) = (2^3 \times 5 \times 7^2, 2^3 \times 3 \times 5 \times 7^2) = 2^3 \times 5 \times 7^2 = 1960$

E  $\text{ggd}(1024,2024) = (2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2, 2 \times 2 \times 2 \times 11 \times 23) = (2^{10}, 2^3 \times 11 \times 23) = 2^3 = 8$

1.21

A  $\text{kgv}(12,30) = (2 \times 2 \times 3, 2 \times 3 \times 5) = (2^2 \times 3, 2 \times 3 \times 5) = 2^2 \times 3 \times 5 = 60$

B  $\text{kgv}(27,45) = (3 \times 3 \times 3, 3 \times 3 \times 5) = (3^3, 3^2 \times 5) = 3^3 \times 5 = 135$

C  $\text{kgv}(18,63) = (2 \times 3 \times 3, 3 \times 3 \times 7) = (2 \times 3^2, 3^2 \times 7) = 2 \times 3^2 \times 7 = 126$

D  $\text{kgv}(16,40) = (2 \times 2 \times 2 \times 2, 2 \times 2 \times 2 \times 5) = (2^4, 2^3 \times 5) = 2^4 \times 5 = 80$

E  $\text{kgv}(33,121) = (3 \times 11, 11 \times 11) = (3 \times 11, 11^2) = 3 \times 11^2 = 363$

1.22

A  $\text{kgv}(52,39) = (2 \times 2 \times 13, 3 \times 13) = (2^2 \times 13, 3 \times 13) = 2^2 \times 3 \times 13 = 156$

B  $\text{kgv}(64,80) = (2 \times 2 \times 2 \times 2 \times 2 \times 2, 2 \times 2 \times 2 \times 2 \times 5) = (2^6, 2^4 \times 5) = 2^6 \times 5 = 320$

C  $\text{kgv}(144,240) = (2 \times 2 \times 2 \times 2 \times 3 \times 3, 2 \times 2 \times 2 \times 2 \times 3 \times 5) = (2^4 \times 3^2, 2^4 \times 3 \times 5) = 2^4 \times 3^2 \times 5 = 720$

D  $\text{kgv}(169,130) = (13 \times 13, 2 \times 5 \times 13) = (13^2, 2 \times 5 \times 13) = 2 \times 5 \times 13^2 = 1690$

E  $\text{kgv}(68,51) = (2 \times 2 \times 17, 3 \times 17) = (2^2 \times 17, 3 \times 17) = 2^2 \times 3 \times 17 = 204$

1.23

A  $\text{kgv}(250,125) = (2 \times 5 \times 5 \times 5, 5 \times 5 \times 5) = (2 \times 5^3, 5^3) = 2 \times 5^3 = 250$

B  $\text{kgv}(144,216) = (2 \times 2 \times 2 \times 2 \times 3 \times 3, 2 \times 2 \times 2 \times 3 \times 3 \times 3) = (2^4 \times 3^2, 2^3 \times 3^3) = 2^4 \times 3^3 = 432$

C  $\text{kgv}(520,390) = (2 \times 2 \times 2 \times 5 \times 13, 2 \times 3 \times 5 \times 13) = (2^3 \times 5 \times 13, 2 \times 3 \times 5 \times 13) = 2^3 \times 3 \times 5 \times 13 = 1560$

D  $\text{kgv}(888,185) = (2 \times 2 \times 2 \times 3 \times 37, 5 \times 37) = (2^3 \times 3 \times 37, 5 \times 37) = 2^3 \times 3 \times 5 \times 37 = 4440$

E  $\text{kgv}(124,341) = (2 \times 2 \times 31, 11 \times 31) = (2^2 \times 31, 11 \times 31) = 2^2 \times 11 \times 31 = 1364$

1.24

A  $\text{kgv}(240,180) = (2 \times 2 \times 2 \times 2 \times 3 \times 5, 2 \times 2 \times 3 \times 3 \times 5) = (2^4 \times 3 \times 5, 2^2 \times 3^2 \times 5) = 2^4 \times 3^2 \times 5 = 720$

B  $\text{kgv}(276,414) = (2 \times 2 \times 3 \times 23, 2 \times 3 \times 3 \times 23) = (2^2 \times 3 \times 23, 2 \times 3^2 \times 23) = 2^2 \times 3^2 \times 23 = 828$

C  $\text{kgv}(588,504) = (2 \times 2 \times 3 \times 7 \times 7, 2 \times 2 \times 2 \times 3 \times 3 \times 7) = (2^2 \times 3 \times 7^2, 2^3 \times 3^2 \times 7) = 2^3 \times 3^2 \times 7^2 = 3528$   
 D  $\text{kgv}(315,189) = (3 \times 3 \times 5 \times 7, 3 \times 3 \times 3 \times 7) = (3^2 \times 5 \times 7, 3^3 \times 7) = 3^3 \times 5 \times 7 = 945$   
 E  $\text{kgv}(403,221) = (13 \times 31, 13 \times 17) = 13 \times 17 \times 31 = 6851$

1.25

A

9 =  $3 \times 3$  =  $3^2$        $\text{ggd} = 3 = 6$   
 12 =  $2 \times 2 \times 3$  =  $2^2 \times 3$        $\text{kgv} = 3^2 \times 2^2 \times 5 = 180$   
 30 =  $2 \times 3 \times 5$  =  $2 \times 3 \times 5$

B

24 =  $2 \times 2 \times 2 \times 3$  =  $2^3 \times 3$        $\text{ggd} = 2 \times 3 = 6$   
 30 =  $2 \times 3 \times 5$  =  $2 \times 3 \times 5$        $\text{kgv} = 2^3 \times 3^2 \times 5 = 360$   
 36 =  $2 \times 2 \times 3 \times 3$  =  $2^2 \times 3^2$

C

10 =  $2 \times 5$        $\text{ggd} = 5$   
 15 =  $3 \times 5$        $\text{kgv} = 2 \times 3 \times 5 \times 7 = 210$   
 35 =  $5 \times 7$

D

18 =  $2 \times 3 \times 3$  =  $2 \times 3^2$        $\text{ggd} = 3^2 = 9$   
 27 =  $3 \times 3 \times 3$  =  $3^3$        $\text{kgv} = 2 \times 3^3 \times 7 = 378$   
 63 =  $3 \times 3 \times 7$  =  $3^2 \times 7$

E

21 =  $3 \times 7$  =  $3 \times 7$        $\text{ggd} = 3$   
 24 =  $2 \times 2 \times 2 \times 3$  =  $2^3 \times 3$        $\text{kgv} = 2^3 \times 3^3 \times 7 = 1512$   
 27 =  $3 \times 3 \times 3$  =  $3^3$

1.26

A

28 =  $2 \times 2 \times 7$  =  $2^2 \times 7$        $\text{ggd} = 7$   
 35 =  $5 \times 7$  =  $5 \times 7$        $\text{kgv} = 2^2 \times 5 \times 7^2 = 980$   
 49 =  $7 \times 7$  =  $7^2$

B

64 =  $2 \times 2 \times 2 \times 2 \times 2 \times 2$  =  $2^6$        $\text{ggd} = 2^4 = 16$   
 80 =  $2 \times 2 \times 2 \times 2 \times 5$  =  $2^4 \times 5$        $\text{kgv} = 2^6 \times 5 \times 7 = 2240$   
 112 =  $2 \times 2 \times 2 \times 2 \times 7$  =  $2^4 \times 7$

C

39 =  $3 \times 13$  =  $3 \times 13$        $\text{ggd} = 13$   
 52 =  $2 \times 2 \times 13$  =  $2^2 \times 13$        $\text{kgv} = 2^2 \times 3 \times 5 \times 13 = 780$   
 130 =  $2 \times 5 \times 13$  =  $2 \times 5 \times 13$

D

144 =  $2 \times 2 \times 2 \times 2 \times 3 \times 3$  =  $2^4 \times 3^2$        $\text{ggd} = 2^2 \times 3 = 12$   
 168 =  $2 \times 2 \times 2 \times 3 \times 7$  =  $2^3 \times 3 \times 7$        $\text{kgv} = 2^4 \times 3^2 \times 7 = 1008$   
 252 =  $2 \times 2 \times 3 \times 3 \times 7$  =  $2^2 \times 3^2 \times 7$

E

189 =  $3 \times 3 \times 3 \times 7$  =  $3^3 \times 7$        $\text{ggd} = 3^2 \times 7 = 63$   
 252 =  $2 \times 2 \times 3 \times 3 \times 7$  =  $2^2 \times 3^2 \times 7$        $\text{kgv} = 2^2 \times 3^3 \times 5 \times 7 = 3780$   
 315 =  $3 \times 3 \times 5 \times 7$  =  $3^2 \times 5 \times 7$