

Wiskundige vaardigheden

1 a x^{14} d $5x^8$ g $105x^7$
b $15x^{14}$ e $-12x^2$ h $24x^{80}$
c $-6x^{10}$ f $3x^{19}$ i $-63x^{16}$

2 a $11x^3$ d k.n. g 0
b $2x^7$ e $-x^6$ h $8x^4$
c $2x^6$ f 0 i $2x^9$

3 a $21x^7$ d $2x^7$ g x^3
b $11x^3$ e $13x^7$ h $-2x^5$
c $-12x^6$ f $-8x^3$ i $11x^7$

4 a x^{15} f $9a^6$
b a^{28} g $-32x^{15}$
c $25p^2$ h $-5x^{12}$
d $27a^3b^3$ i $25y^4$
e $5x^{12}$ j $36a^2b^8$

5 a $5a^6$ d $50x^{10}$ g $6x^6$
b $22a^9$ e $14p^2$ h $-7x^{21}$
c $-a^{12}$ f $10a^{12}$ i $-63a^{15}$

6 a x^8 d $5x^8$ g $-3x^2$
b 1 e x^4 h $3x^3y$
c x f 2 i $3x^2$

7 a $16a^9$ d $21a^{12}$ g $500x^8$
b $4a^3$ e $2a^{10}$ h $8x$
c k.n. f $144a^{16}$ i $5x^3y^5$

8 a $6x^5$ f $-21a^6$
b $2x^3$ g $-4x$
c $2x^{12}$ h $-45x^{16}$
d $6a^4$ i $71x^6$
e $2a^8$ j $152x^{13}$

- 1** a 6
b -13
c 8

- 2** a 30
b -129
c 34

- 3** a 3
b 7
c 8

- 4** a 4
b 17
c 4

- 5** a $x(7 - x)$
b $3x(x + 3)$
c $5x(-1 + 4x)$

- d -150
e -213
f 144

- d 66
e -120
f 121

- d 3
e 16
f 0

- d 9
e 0
f 36

- d $17x(1 - 3x)$
e $20x(5x - 1)$
f $-100x(5x + 2)$

- 6** a $(x + 12)(x - 2)$
b $(x - 1)(x - 4)$
c $(x + 5)(x - 6)$

- 7** a $(x - 1)(x - 1)$
b $8x(x - 2)$
c $(x - 2)(x + 17)$

- 8** a $(x + 1)(x - 5)$
b $(x - 3)(x - 4)$
c $(x + 5)(x + 5)$

- 9** a $-40x^5$
b $-2x^6$
c 0
d $19x^5$
e $-20x^2$
f $6x^5 - 6x^6$
g $-x^7$
h $4000x^{130}$

- d $(x - 7)(x - 7)$
e $(x - 2)(x + 10)$
f $(x + 3)(x + 4)$

- d $(x - 10)(x - 10)$
e $(x + 11)(x + 11)$
f $(x - 4)(x + 12)$

- d $(x - 15)(x - 15)$
e $-x(x + 5)$
f $(x - 10)(x - 11)$

- 1** a 0,58 d 0,003 g 0,111
b 0,31 e 0,893 h 0,01
c 0,082 f 0,0007
- 2** a 23% d 0,73% g 0,2%
b 92% e 90,8% h 17,3%
c 8% f 20%
- 3** a $\frac{1}{4}$ d $\frac{1}{8}$ g $\frac{1}{2}$
b $\frac{2}{5}$ e $\frac{3}{50}$ h $\frac{3}{4}$
c $\frac{4}{5}$ f $\frac{1}{3}$
- 4** a 25% e 2,5% i 22%
b 20% f 15% j 42,5%
c 50% g 0,3% k 1,25%
d 60% h 62,5% l 13,7%
- 5** a 75% d 0,3% g 37,5%
b 11% e 8,8% h 40%
c 62% f 9,8%

- 6** a 49,8 d 4,56 g 2,2
b 38,16 e 76,8 h 24,8
c 39,75 f 16,59 i 6,675
- 7** a 28% d 87,5% g 0,1%
b 36% e 33,3% h 17,8%
c 72% f 98,3% i 55,2%
- 8** a 1,12 d 1,002 g 1,0008
b 1,31 e 1,038 h 1,0103
c 1,08 f 1,999
- 9** a 0,93 d 0,97 g 0,99918
b 0,89 e 0,981 h 0,918
c 0,52 f 0,9918
- 10** a 0,905 d 0,824 g 0,972
b 1,095 e 1,176 h 1,028
c 0,9905 f 0,9982 i 0,989

- 1** a $15x^2 + 26x + 8$ d $16a^2 - 62a + 21$
b $23x + 8$ e $16a^2 - 6a - 7$
c $15x^2 + 20x + 2$ f $2a + 21$
- 2** a $10x^2 - 41x + 21$ d $6a^2 - 30a + 19$
b $10x^2 + 12x + 3$ e $24a^2 + a - 3$
c $11x - 29$ f $13a^2 - 43a + 4$
- 3** a $10x^2 - 13x + 17$ d $8x^2 - 3$
b $x^2 + 9x - 20$ e $x^2 - 11x + 4$
c $-5x + 17$ f $2x^2 + 2$
- 4** a $-x$ d $21x$
b $11x^2 - 18x$ e $-x - 1$
c $-160x$ f $18x^2 + 32$
- 5** a $x^2 - 11x + 24$ d $y^2 + 4y - 96$
b $p^2 - 2p - 3$ e $a^2 - 49$
c $q^2 + q - 56$ f $m^2 - 7m - 8$

- 6** a $(a-1)(a-10)$ e $(x+2)(x-3)$
b $(a-1)(a+10)$ f $(x-2)(x-3)$
c $(a+2)(a-5)$ g $(x-1)(x+6)$
d $(a+2)(a+5)$ h $(x-1)(x-6)$
- 7** a $3a(a-7)$ e $(a-5)(a-5)$
b $x(7x+2)$ f $(a+1)(a-25)$
c $5(a^2-2a+3)$ g $(x-4)(x-20)$
d $(a+2)(a-12)$ h $(p+8)(p-10)$
- 8** a $a = -7 \vee a = 8$ f $a = -2 \vee a = 4$
b $a = -2 \vee a = 7$ g $a = 1 \vee a = 8$
c $a = -1 \vee a = 3$ h $a = -1 \vee a = -4$
d $a = 5 \vee a = -8$ i $a = 0 \vee a = -\frac{25}{42}$
e $a = -\frac{1}{2} \vee a = \frac{1}{3}$ j $a = 6\frac{1}{2} \vee a = 0$
- 9** a $x = -1 \vee x = 8$ f $x = 12 \vee x = 2$
b $x = 0 \vee x = 7$ g $x = 2 \vee x = -2$
c $x = 7 \vee x = 8$ h $x = 0 \vee x = 1$
d $x = 2 \vee x = 13$ i $x = 0 \vee x = 1$
e $x = 7\frac{1}{2}$ j $x = 9 \vee x = 7$
- 10** a $x = 0 \vee x = 9$ f $x = 5 \vee x = -3\frac{1}{3}$
b $x = 2 \vee x = 7$ g $x = 5 \vee x = 8$
c $x = -4 \vee x = 10$ h $x = -\frac{3}{4} \vee x = \frac{1}{6}$
d $x = -3 \vee x = 23$ i $x = 2 \vee x = -\frac{2}{3}$
e $x = -4 \vee x = 5$
j $x = -\frac{2}{3} \vee x = 16 \vee x = -5$

	1	3	4		3	1	9		4	2	5	
5	2		1	9				8	7			2
10	5	1		1	9	3	5			8	6	
	8	3		1	0			4	9			
20	7		4	4				7	0			1
	3		7	5				6	1			9
	7	1		5	7			2	2			
32	4	0		1	0	0	1			8	3	
	1		9	1				7	2			2
	7	3		3	6			5	5			

De geheime boodschap is PRIMA GEPUZZELD.

1 a a^{10} d a^{17} g a^3b^3
b a^{21} e a^8 h $625a^4$
c 1 f a^4 i a^4

2 a $15a^{13}$ f 2
b $27a^{15}$ g $180a^{26}$
c $7a^9$ h $76a^{20}$
d $73a^6$ i a^2
e $3120a^{10}$

3 a $20x^3y^6$ f $5x^3 + 3y^6$
b $48x^6y^7$ g $240p^4q^2$
c $5x^5y^4$ h $3q^3$
d $27x^2y^6$ i $7xy^3$
e $-21x^7y^5$

4 a $x^5 + x^6$
b $15x^3 - 21x^2$
c $8x^9 - 12x^{10}$
d $4x^5 - 20x^4$
e $3x^4 + x^9 + 3x^3 + x^8$
f $2x^4 + 3x^2$

5 a x^{5+p} d x^{3p} g x^{4p}
b $15x^{4+p}$ e $32x^{5p}$ h $625x^{4p}$
c $15x^{2p}$ f $5px^{p+3}$ i x^{2p^2}

6 a x^{2p+3} f x^{2+p}
b x^{p^2+3p} g x^{4+2p}
c x^3 h x^{p^2+4p+4}
d x^{3p-3} i 1
e x^{4p}

7 a a^{4x} f a
b a^{3x+x^2} g $a^{3x}b^{2x}$
c a^{x^2+x} h a^{16-x^2}
d a^{2x+4} i $16a^{4x}b^{12}$
e $15a^{5+3x}$

8 a a^{6n+4}
b a^{2+3n}
c a^{7n-2}
d a^{n+3}
e a^{7n}
f $72a^{2n+3m}$
g a^{3n+6}
h $a^{n+2}b^{6-n}$
i a^{10n}
j a^{10}
k $2a^{5n-5}$
l a^{6n}

- 1** a $x = -6$
 b $x = -2\frac{1}{2}$
 c $x = -8$
 d $x = -2$
 e $x = 6$
 f $x = 20$
 g $x = 0$
 h $x = 6$

- 2** a $x = 24$
 b $x = \frac{3}{4}$
 c $x = -15$
 d $x = -4\frac{1}{2}$

- 3** a $x > -3$
 b $x > 1\frac{1}{8}$
 c $x > -30$
 d $x < -1\frac{1}{2}$
 e $x > 1\frac{7}{23}$
 f $x < 5$

- 4** a $x = 7 \vee x = -7$
 b $x = 3 \vee x = -3$
 c geen oplossingen
 d $x = 1 \vee x = -1$
 e $x = \frac{1}{5} \vee x = -4$
 f $x = 8 \vee x = -3$
 g $x = 0 \vee x = -7$
 h $x = 2 \vee x = -10$

- 5** a $x = -1 \vee x = 4$
 b $x = 0 \vee x = 5$
 c geen oplossingen
 d $x = 0 \vee x = -1$
 e $x = 1 \vee x = -9$
 f $x = 3 \vee x = -11$
 g $x = -1$
 h $x = 1 \vee x = -5$

- 6** a $x \approx -2,30 \vee x \approx 1,30$
 b $x = -1$
 c $x = -1 \vee x = 1\frac{1}{3}$
 d $x = -2 \vee x = 6$

- 7** a $x = -2\frac{4}{5} \vee x = 1$
 b $x = -\frac{2}{3} \vee x = 2$
 c $x = 2 \vee x = 5$
 d $x = 1 \vee x = -1$

- 8** a $x < -2\sqrt{2} \vee x > 2\sqrt{2}$
 b $-\sqrt{5} < x < \sqrt{5}$
 c elke x is oplossing
 d $x < -\sqrt{6} \vee x > \sqrt{6}$
 e $x < -7 \vee x > 2$
 f $x < 1 \vee x > 1\frac{1}{2}$
 g $x < 0 \vee x > 1\frac{2}{3}$
 h $x < -\sqrt{10} \vee x > \sqrt{10}$

- 9** a $x = 7$
 b $x = 10$
 c $x = -4 \vee x = 5$
 d $x = 5$
 e $x = -1\frac{1}{5}$
 f $x = -1$

- 10** a $x \approx -2,66 \vee x \approx 2,66$
 b $x \approx 1,91$
 c geen oplossingen
 d $x \approx -1,93$
 e $x \approx -1,50 \vee x \approx 1,50$
 f $x = -1 \vee x = 1$
 g $x = -1$
 h $x \approx 1,48$