Rekenregels Wiskunde B

Haakjes

$a \cdot (b + c) = a \cdot b + a \cdot c$
$(a + b) \cdot c = a \cdot c + b \cdot c$
$(a + b)^2 = a^2 + 2 \cdot a \cdot b + b^2$
$(a - b)^2 = a^2 - 2 \cdot a \cdot b + b^2$
$-(a + b) = -a - b$

$(a \cdot b) \cdot c = a \cdot b \cdot c$
$-(a \cdot b) = -a \cdot b = a \cdot -b$
$(ab)^c = a^c b^c$
$\left(\frac{a}{b}\right)^c = \frac{a^c}{b^c}$

Machten

$x^a \cdot x^b = x^{a+b}$
$\frac{x^a}{x^b} = x^{a-b}$
$(x^a)^b = x^{a \cdot b}$

$\sqrt[b]{x^a} = x^{\frac{a}{b}}$
$\frac{1}{x} = x^{-1}$
$(-x)^2 = x^2$

Breuken

$\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c}$
$\frac{a}{b} = a\frac{1}{b}$
$\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$

$\frac{ac}{bc} = \frac{a}{b}$
$c \cdot \frac{a}{b} = \frac{ac}{b}$
$-\frac{a}{b} = \frac{-a}{b} = \frac{a}{-b}$

Wortels

$\sqrt{ab} = \sqrt{a}\sqrt{b}$
$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$
Let op: $\sqrt{a+b} \neq \sqrt{a} + \sqrt{b}$

$\sqrt{a^2} = |a|$
$\sqrt{a}^2 = \left(\sqrt{a}\right)^2 = a$
$\sqrt{a} = a^{\frac{1}{2}}$

ABC-formule

Los op: $ax^2 + bx + c = 0$

$D = b^2 - 4ac$

$$x = \frac{-b \pm \sqrt{D}}{2a}$$

Differentiëren & Integreren

$$\frac{\mathrm{d}}{\mathrm{d}x}\sqrt{x} = \frac{1}{2\sqrt{x}} \qquad \int \frac{1}{2\sqrt{x}}\mathrm{d}x = \sqrt{x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\sin x = \cos x \qquad \int \sin x \mathrm{d}x = -\cos x$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\cos x = -\sin x \qquad \int \cos x \mathrm{d}x = \sin x$$

$$\frac{\mathrm{d}}{\mathrm{d}x}e^x = e^x \qquad \int e^x \mathrm{d}x = e^x$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\ln x = \frac{1}{x} \qquad \int \frac{1}{x}\mathrm{d}x = \ln|x|$$

($\frac{\mathrm{d}}{\mathrm{d}x}$ betekent 'afgeleide van')

Gonio

$\sin 2x = 2\sin x \cos x$

$\cos 2x = 2\cos^2 x - 1$

$\cos 2x = 1 - 2\sin^2 x$

$\sin^2 x + \cos^2 x = 1$

$\sin x = \cos(\frac{\pi}{2} - x) = \cos(x - \frac{\pi}{2})$

$\cos x = \sin(\frac{\pi}{2} - x) = \sin(\frac{\pi}{2} + x)$