Hulp materiaal bij toets

standaardlimieten type $\frac{0}{0}$

$$\lim_{x\to 0} \frac{\sin(x)}{x} = 1 \tag{1}$$

$$\lim_{x\to 0} \frac{\ln(x+1)}{x} = 1 \tag{2}$$

$$\lim_{x\to 0} \frac{e^x - 1}{x} = 1 \tag{3}$$

$$\lim_{x\to 0} \frac{1-\cos(x)}{\frac{1}{2}x^2} = 1 \tag{4}$$

standaardlimieten type x naar "plus oneindig" of naar "min oneindig"

$$\lim_{x\to \pm\infty} \left(\frac{1}{x}\right) = 0 \tag{5}$$

$$\lim_{x\to \infty} \left(e^{-x}\right) = 0 \tag{6}$$

$$\lim_{x\to -\infty} \left(e^{x}\right) = 0 \tag{7}$$

$$\lim_{x\to \infty} \arctan(x) = \frac{\pi}{2} \tag{8}$$

$$\lim_{x\to -\infty} \arctan(x) = -\frac{\pi}{2} \tag{9}$$

Afgeleiden van standaardfuncties

$f(x)$	$f'(x)$
a^x	$\ln(a) \cdot a^x$
$\ln \lvert x \rvert$	$\frac{1}{x}$
${}^a\log \lvert x \rvert$	$\frac{1}{x \ln a}$
$\sinh x$	$\cosh x$
$\cosh x$	$\sinh x$
$\tan x$	$\frac{1}{\cos^2(x)}$
$\cot x$	$-\frac{1}{\sin^2(x)}$
$\arcsin x$	$\frac{1}{\sqrt{1-x^2}}$
$\arccos x$	$\frac{-1}{\sqrt{1-x^2}}$
$\arctan x$	$\frac{1}{1+x^2}$

kromming

$$k = \frac{y''}{\left(1 + (y')^2\right)^{\frac{3}{2}}} \tag{10}$$

De kromtestraal:

$$R = \left|\frac{1}{k}\right| = \left|\frac{\left(1 + (y')^2\right)^{\frac{3}{2}}}{y''}\right| \tag{11}$$