

## FORMULARIUM VOOR INTEGRALLEN

- 1  $\int dx = x + c$
- 2  $\int df(x) = f(x) + c$
- 3  $\int x^n dx = \frac{x^{n+1}}{n+1} + c \quad (n \neq -1)$
- 4  $\int \frac{dx}{x} = \ln|x| + c$
- 5  $\int \frac{dx}{\sqrt{x}} = 2\sqrt{x} + c$
- 6 **lineariteit** :  $\int a \cdot f(x) dx = a \cdot \int f(x) dx$     **en**     $\int [f(x) + g(x)] dx = \int f(x) dx + \int g(x) dx$   
 $\Downarrow$   
 $\int [a \cdot f(x) + b \cdot g(x)] dx = a \cdot \int f(x) dx + b \cdot \int g(x) dx$
- 7 **partiële integratie** :  $\int u dv = uv - \int v du$
- 8 **bepaalde integraal** :  $\int_a^b f(x) dx = [F(x)]_a^b$   
 $= F(b) - F(a)$   
 hierbij is F een primitieve functie van f , d.w.z.  $F'(x)=f(x)$
- 9  $\int \sin x dx = -\cos x + c$
- 10  $\int \cos x dx = \sin x + c$
- 11  $\int \frac{dx}{\cos^2 x} = \tan x + c$
- 12  $\int \frac{dx}{\sin^2 x} = -\cot x + c$
- 13  $\int a^x dx = \frac{a^x}{\ln a} + c$
- 14  $\int e^x dx = e^x + c$
- 15  $\int \frac{dx}{1+x^2} = Bg \tan x + c$     **en**     $\int \frac{dx}{a^2+x^2} = \frac{1}{a} Bg \tan \frac{x}{a} + c$
- 16  $\int \frac{dx}{\sqrt{1-x^2}} = Bg \sin x + c$     **en**     $\int \frac{dx}{\sqrt{a^2-x^2}} = Bg \sin \frac{x}{a} + c$
- 17  $\int \frac{dx}{x^2-a^2} = \frac{1}{2a} \ln \left| \frac{x-a}{x+a} \right| + c$
- 18  $\int \frac{dx}{\sqrt{x^2+k}} = \ln|x + \sqrt{x^2+k}| + c$
- 19  $\int \frac{dx}{\sin x} = \ln \left| \tan \frac{x}{2} \right| + c$
- 20  $\int \frac{dx}{\cos x} = \ln \left| \tan \left( \frac{\pi}{4} + \frac{x}{2} \right) \right| + c$
- 21  $\int \sinh x dx = \cosh x + c$
- 22  $\int \cosh x dx = \sinh x + c$
- 23  $\int \sqrt{u^2+k} du = \frac{u}{2} \sqrt{u^2+k} + \frac{k}{2} \ln|u + \sqrt{u^2+k}| + c$
- 24  $\int \sqrt{k-u^2} du = \frac{u}{2} \sqrt{k-u^2} + \frac{k}{2} Bg \sin \frac{u}{\sqrt{k}} + c$

$1 + \tan^2 x = \frac{1}{\cos^2 x} (= \sec^2 x)$	$1 + \cot^2 x = \frac{1}{\sin^2 x} (= \operatorname{cosec}^2 x)$	$2 \sin^2 x = 1 - \cos 2x$	$2 \cos^2 x = 1 + \cos 2x$
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