- $x^a \cdot x^b = x^{a+b}$
- $\frac{x^a}{x^b} = x^{a-b}$
- $(x^a)^b = x^{ab}$
- $(x \cdot y)^a = x^a \cdot y^a$
- $x^{\frac{1}{a}} = \sqrt[a]{x}$
- $a^{-1} = \frac{1}{a}$
- $(-x)^2 = x^2$
- $(-x)^3 = -(x^3)$

- $\int x^c dx = \frac{1}{c+1} x^{c+1}$
- $\int e^x dx = e^x$
- $\int \frac{1}{x} dx = log(x)$
- $\int c \cdot f(x) dx = c \cdot \int f(x) dx$
- $\int f(x) + g(x) dx = \int f(x) dx + \int g(x) dx$
- $\int e^{-cx} dx = -\frac{1}{c} e^{-cx}$
- $\int f \cdot g = F \cdot g - \int F \cdot g'$

- $(\frac{g(x)}{h(x)})' = \frac{g(x)' \cdot h(x) - g(x) \cdot h(x)'}{h(x)^2}$
- $(g(x) \cdot h(x))' = g(x)' \cdot h(x) + g(x) \cdot h(x)'$
- $g(h(x))' = g'(h(x)) \cdot h(x)'$
- $log(x)' = \frac{1}{x}$
- $(e^x)' = e^x$
- $(e^{-x^2})' = e^{-x^2} \cdot -2x$
- $cos(x)' = -sin(x)$
- $sin(x)' = cos(x)$

- $cos(-x) = cos(x)$
- $sin(-x) = -sin(x)$
- $cos^2(x) + sin^2(x) = 1$

- $\begin{pmatrix} a & c \\ b & d \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} a \cdot x + c \cdot y \\ b \cdot x + d \cdot y \end{pmatrix}$
- $\mathbf{A} = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$
- $\mathbf{A}^T = \begin{pmatrix} a & c \\ b & d \end{pmatrix}$
- $\mathbf{A}^{-1} = \frac{1}{det(A)} \cdot \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$
- $det(\mathbf{A}) = ad - bc$ (voor 2×2 matrices)
- $det(\mathbf{AB}) = det(\mathbf{A}) \cdot det(\mathbf{B})$
- $det(\mathbf{A}^{-1}) = det(\mathbf{A})^{-1}$

- $ax^2 + bx + c = 0 \Rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

- $\Gamma(z+1) = z \cdot \Gamma(z)$
- $\Gamma(z) = \int_0^\infty t^{z-1} e^{-t} dt$
- $\Gamma(z+1) = z!$ als z integer

- $P(A|B) = \frac{P(B|A) \cdot P(A)}{P(B)}$
- A & B independent:
  - $P(A \cap B) = P(A) \cdot P(B)$
  - $P(A|B) = P(A)$