Equations in LaTeX

Equation 1

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-2 \pm \sqrt{2^2 - 4*(1)*(-8)}}{2*1}$$

$$= \frac{-2 \pm \sqrt{4 + 32}}{2}$$

Equation 2

$$\varphi_\sigma^\lambda A_t = \sum_{\pi \in C_t} sgn(\pi)\varphi_\sigma^\lambda \varphi_\pi^\lambda$$

$$= \sum_{\tau \in C_{\sigma t}} sgn(\sigma^{-1}\tau\sigma)\varphi_\sigma^\lambda \varphi_{\sigma^{-1}\tau\sigma}^\lambda$$

$$= A_{\sigma t}\varphi_\sigma^\lambda$$