

$$PI := \log_{10}(z1/z2*z3*100)$$

equation 1

$$PI_{\text{new}} := \begin{cases} 0 & \text{if } z1 = 0 \vee z3 = 0, \\ 0 & \text{if } z2 = 0 \wedge z3 = 0.01, \\ \log_{10}\left(\frac{\min(z1,z3)*(\max(z1,z3)-0.01)}{0.01} * 100\right) * \text{sgn}(z1 - z3) & \text{if } z2 = 0 \wedge (z1 \wedge z3) > 0.01, \\ \log_{10}\left(\frac{z1*z3}{z2} * 100\right) * \text{sgn}(z1 - z3) & \text{else} \end{cases}$$

equation 2

$$\text{where } \text{sgn } x := f(x) = \begin{cases} -1, & x < 0 \\ 0, & x = 0 \\ 1, & x > 0 \end{cases}$$