$$\text{Exp 1: } a = 1.02$$

$$a^{\log_a(x)} = x$$

$$\log_a(x) = \frac{\log_{10} x}{\log_{10} a}$$

$$\log_a(x) = \Rightarrow \log_{10}(x) = \log_a(x)\,\log_{10}(a)$$

$$\Rightarrow \frac{127.10}{R}\log_a\left(\frac{X}{T}\right)\log_{10}(a)$$

$$\Rightarrow \frac{127.10}{R}\log_{10}\left(\frac{X}{T}\right)$$

$$\boxed{\; y = \frac{127.10}{R}\,\log_{10}\left(\frac{X}{T}\right) \;}$$

$$\boxed{\; z = \frac{126}{a^{\frac{126}{R}}-1}\left(a^{Y-1}-1\right)+1 \;}$$

$$\Rightarrow z = \frac{126}{a^{\frac{126}{R}}-1}\left(a^{\frac{127.10}{R}\log_{10}\left(\frac{X}{T}\right)-1}-1\right)+1$$

$$= \frac{126}{a^{\frac{126}{R}}-1}\left(\frac{\left(a^{\log_{10}\left(\frac{X}{T}\right)}\right)^{\frac{127.10}{R}\log_{10}(a)}}{a}-1\right)$$

$$= \frac{126}{a^{\frac{126}{R}}-1}\left(\frac{\left(a^{\log_a\left(\frac{X}{T}\right)}\right)^{\frac{127.10}{R}\log_{10}(a)}}{a}-1\right)$$

$$\underbrace{a^{\log_a\left(\frac{X}{T}\right)}}_{= \left(\frac{X}{T}\right)} = a$$

$$= \frac{126}{a^{\frac{126}{R}}-1}\left(\frac{\left(\frac{X}{T}\right)^{\frac{127.10}{R}\log_{10}(a)}}{a}-1\right)$$

$$\Rightarrow z = \frac{126}{a^{\frac{126}{R}}-1}\left(\frac{\left(\frac{X}{T}\right)^{\frac{126}{R}\log_{10}(a)}}{a}-1\right)+1 = \frac{126}{a^{\frac{126}{R}}-1}\times\frac{\left(\frac{X}{T}\right)^{\frac{127.10}{R}\log_{10}(a)}}{a^{T}}-\frac{126}{a^{\frac{126}{R}}-1}+1$$

$$k_1 = \left(\frac{126}{a^{\frac{126}{R}}-1}\right)a^{-T}\frac{127.10}{R}\log_{10}(a)$$

$$k_2 = \frac{127.10}{R}\log_{10}(a)$$

$$k_3 = 1 - \frac{126}{a^{\frac{126}{R}}-1}$$

$$\boxed{\; z = k_1\times X^{\,k_2} + k_3 \;} \Rightarrow$$