Solution of Resistance-Temperature Relationship

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$$T_1 := T - T_0 \tag{1}$$

$$R_0 := R(T_0) \tag{2}$$

$$R = R_0 \exp(\alpha T_1 + \beta T_1^2) \tag{3}$$

$$\ln \tfrac{R}{R_0} = \alpha T_1 + \beta T_1^2 \tag{4}$$

$$0 = \beta T_1^2 + \alpha T_1 + \ln \tfrac{R}{R_0} \tag{5}$$

$$T_1 = \frac{-\alpha \pm \sqrt{\alpha^2 + 4\beta \ln \frac{R}{R_0}}}{2\beta} \tag{6}$$

$$T = \boxed{\frac{-\alpha \pm \sqrt{\alpha^2 + 4\beta \ln \frac{R}{R_0}}}{2\beta} + T_0} \tag{7}$$