

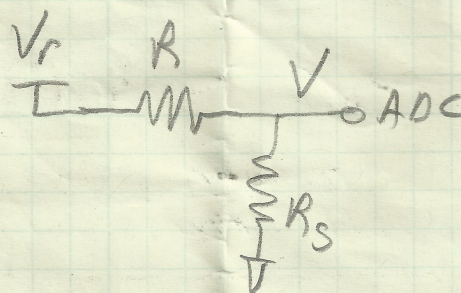
# Thermistor Eqn

$$R = R_0 e^{-B(\frac{1}{T_0} - \frac{1}{T})}$$

$$r_\infty = R_0 e^{-B/T_0}$$

$$R = r_\infty e^{B/T}$$

$$T = \frac{B}{\ln(R/r_\infty)}$$



$$V = \frac{R_s V_r}{R + R_s}$$

$$R_s \left( \frac{V_r}{V} - 1 \right) = r_\infty e^{B/T}$$

$$\frac{V_r}{V} = \frac{r_\infty e^{B/T}}{R_s} + 1$$

$$V = \frac{V_r}{\frac{r_\infty e^{B/T}}{R_s} + 1}$$

$$V = \frac{R_s V_r}{r_\infty e^{B/T} + R_s}$$

SOLVE FOR  
V @ SET POINT T

$$\left( \frac{V}{V_r} \right) 2^N = \text{ADC}$$

ADC COUNT

$$VR + VR_s = R_s V_r$$

$$VR = R_s V_r - VR_s$$

$$R = \frac{R_s V_r - VR_s}{V}$$

$$= R_s \frac{V_r}{V} - R_s$$

$$R = R_s \left( \frac{V_r}{V} - 1 \right)$$

$$T = \frac{B}{\ln \left( \frac{R_s \left( \frac{V_r}{V} - 1 \right)}{r_\infty} \right)}$$

Solve for temperature  
from measured Voltage

$$273.15 K = 0^\circ C$$