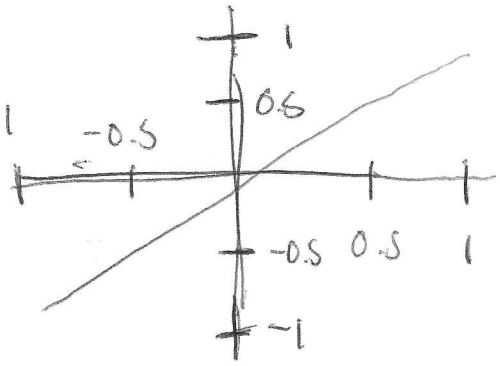
Signal Power = $\frac{1}{2}$

Assume uniform signal from $t=-1$ to $t=1$ like this:



i.e. $x(t) = t$

Noise is uniform for each "bin of data" so we only have to look at one

Let b = width of the bin = $2^{1-\#\text{ of bits}}$

$$P_{noise} = \frac{1}{b}\int_0^b \left(t - b/2\right)^2 dt$$

$$P_{signal} = \frac{1}{2}\int_{-1}^{1} t^2\,dt = \frac{1}{3}$$

$$SNR = \frac{P_{signal}}{P_{noise}} = \frac{\frac{1}{3}}{\frac{1}{2^{1-bits}}\int_0^{2^{1-bits}} \left(t - \frac{2^{1-bits}}{2}\right)^2 dt}$$

For 4 bits, SNR = 256

For 64 bits, SNR = $3.4028236692 \times 10^{38}$