



$$A = 4\pi r^2$$

power / area

$$I \propto \frac{1}{A} \propto \frac{1}{r^2}$$

$$I \propto p^2 \leftarrow \text{pressure}$$

$$\text{SPL diff} = 10 \log_{10} \frac{1}{4}$$

$$\text{SPL}_1 = 10 \log_{10} J \cdot I$$

$$\text{SPL}_2 = 10 \log_{10} J \frac{I}{4}$$

$$\text{SPL}_2 - \text{SPL}_1 = 10 \log_{10} \left( \frac{1}{4} \right)$$

$$d = \text{Junk}$$

