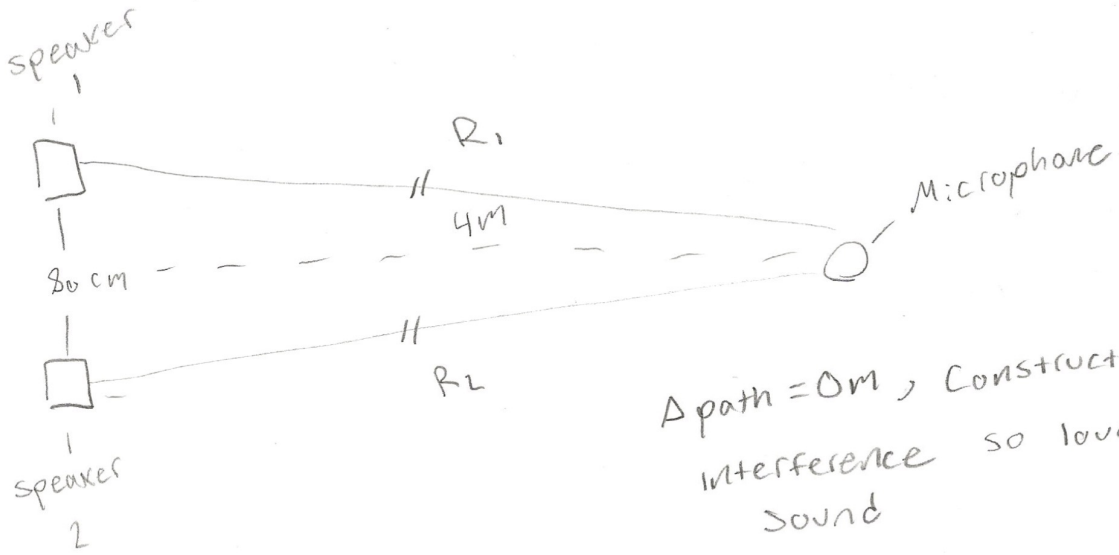


3)



$\Delta \text{path} = 0 \text{ m}$, Constructive interference so loud sound

$$\lambda = \frac{343}{750} \approx 0.457 \text{ m}$$

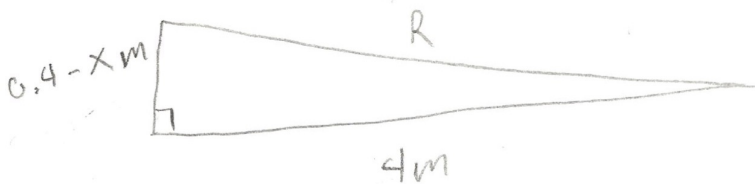
$$\Delta \text{path} = R_1 - R_2 = \frac{1}{2} \lambda$$

$$R_1 - R_2 = 0.23 \text{ m}$$



If $\Delta \text{path} = \frac{1}{2} \lambda = 0.2285 \text{ m}$

$$R_2 = \sqrt{4^2 + \left(x + \frac{80}{2}\right)^2}$$



$$R_1 = \sqrt{4^2 + (0.4 - x)^2}$$

$$\sqrt{4^2 + (0.4 - X)^2} - \sqrt{4^2 + (0.4 + X)^2} = 0.23$$

$$4^2 + (0.4 - X)^2 - 4^2 + (0.4 + X)^2 = 0.23^2$$

$$0.4^2 - 0.8X + X^2 - (0.4^2 + 0.8X + X^2) = 0.23^2$$

$$-1.6X = 0.23^2$$

$$X \approx 3\text{cm}$$

For the next constructive zone

$$-1.6X = 0.46^2$$

$$X \approx 0.132$$

$$0.132 - 0.03 \approx 0.102\text{m}$$