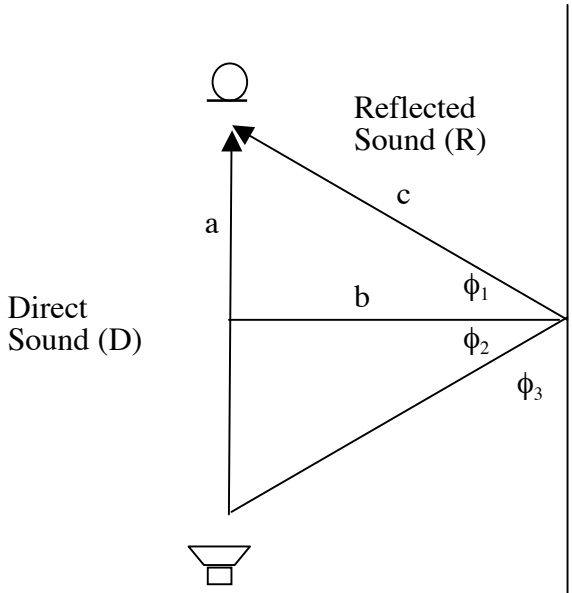

$\sin \phi = a / c$

$c = a / \sin \phi$

$D = 2a \ , \ R = 2c$

$c = \sqrt{(a^2 + b^2)}$

example 1: The distance from the sound source to the microphone is 3.7m. Find Δd if the direct sound path is 2.5m from the wall.

$c = \text{sqrt}(a^2 + b^2)$

$= \text{sqrt}([3.7/2]^2 + 2.5^2)$

$= 3.11\text{m}$

therefore $R = 2\text{x}3.11 = 6.22\text{m}$ and $\Delta d = 6.22 - 3.7 = 2.52\text{m}$

example 2: The direct sound path is 4.5m. If sound is reflected at an angle of 53°, what is the reflection path length?

$\phi_2 = 90 - \phi_3 = 90 - 53 = 37°$

$c = a / \text{Sin}\ \phi = (4.5/2) / \sin 37 = 3.74\text{m}$

$\therefore R = 3.74 \times 2 = 7.48\text{m}$