

# Wave Interference Notes

## Wave Interference - Occurs

when two or more waves exist in the same medium.

Resultant wave - combined wave

## Principle of Superposition

- the amplitude of the resultant wave is equal to the sum of the original waves.

There's two types of Wave Int:

Constructive Int - increases the amplitude of the resultant wave

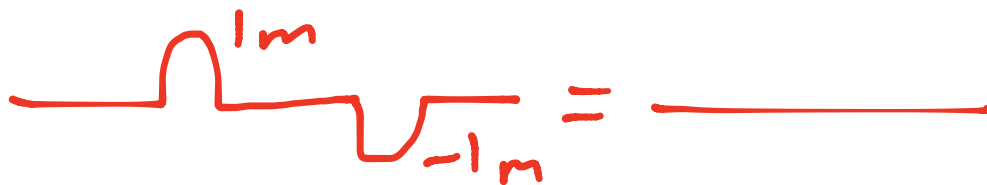
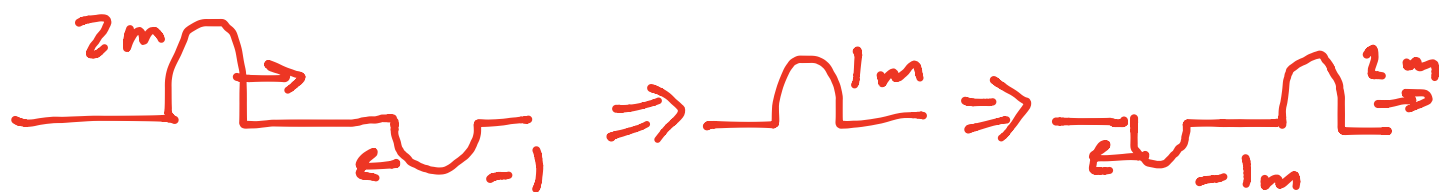
- two crests or two troughs



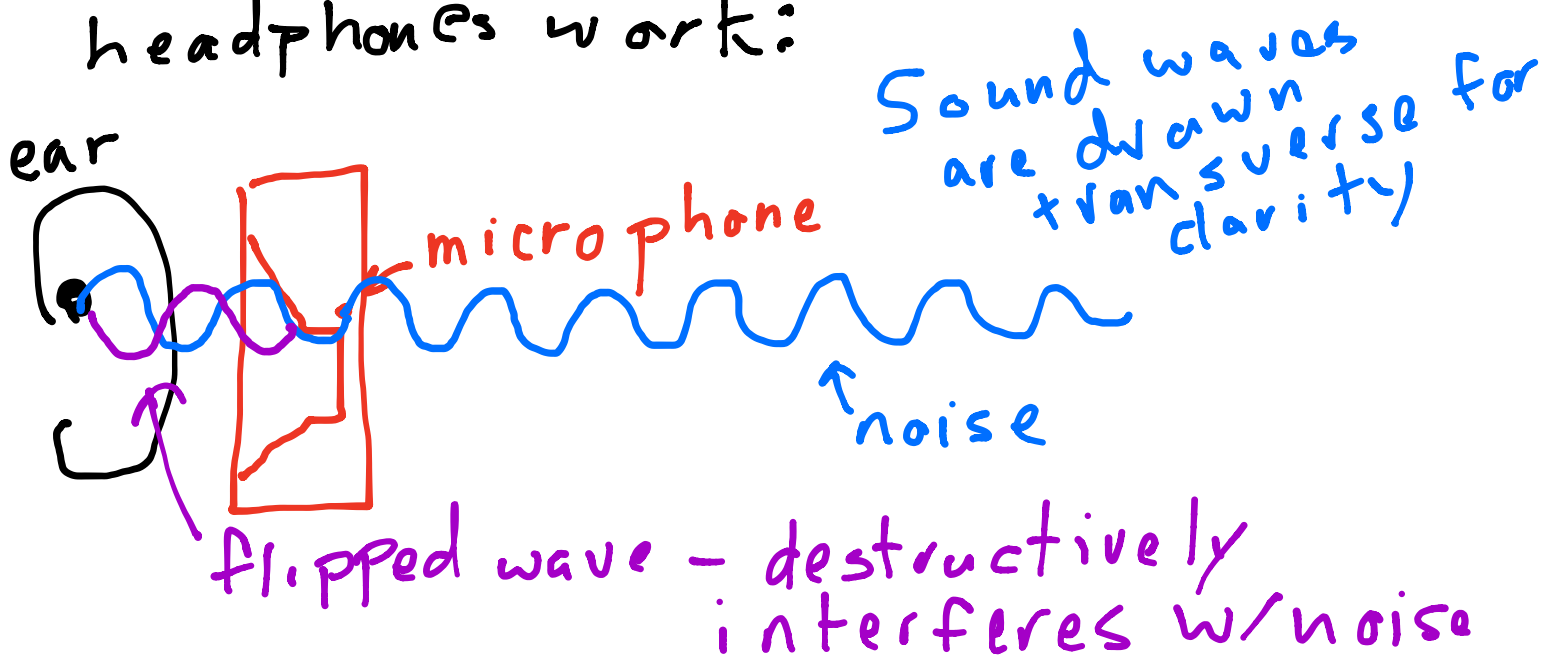
$$-1m \rightarrow -1m = -2m$$

Destructive Int. -

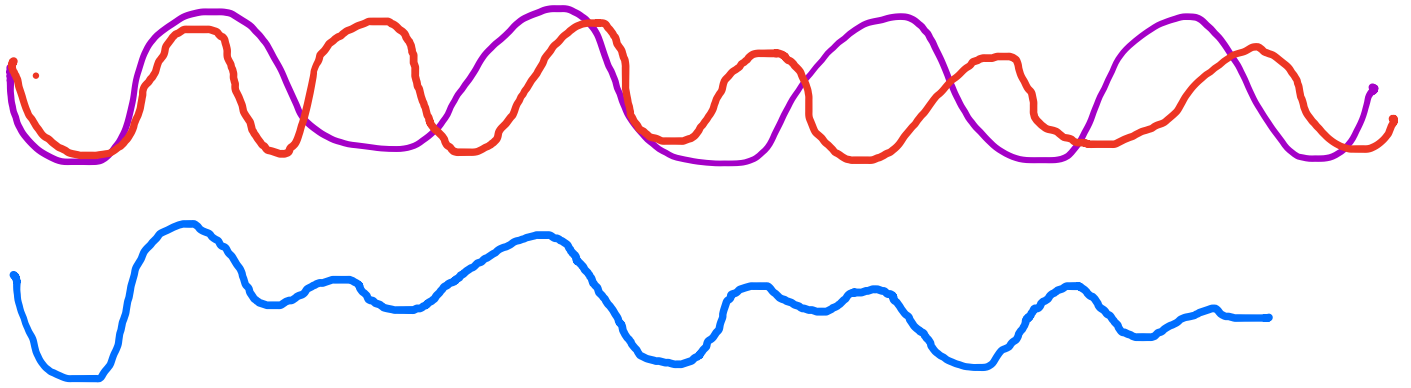
waves collide and create a resultant wave with a smaller amplitude.



Here's how noise-cancelling headphones work:



Beat - fluctuating sound  
created when two waves  
without the same  $f$ , interfere.



$$f_{\text{BEAT}} = f_{\text{H1}} - f_{\text{LO}}$$