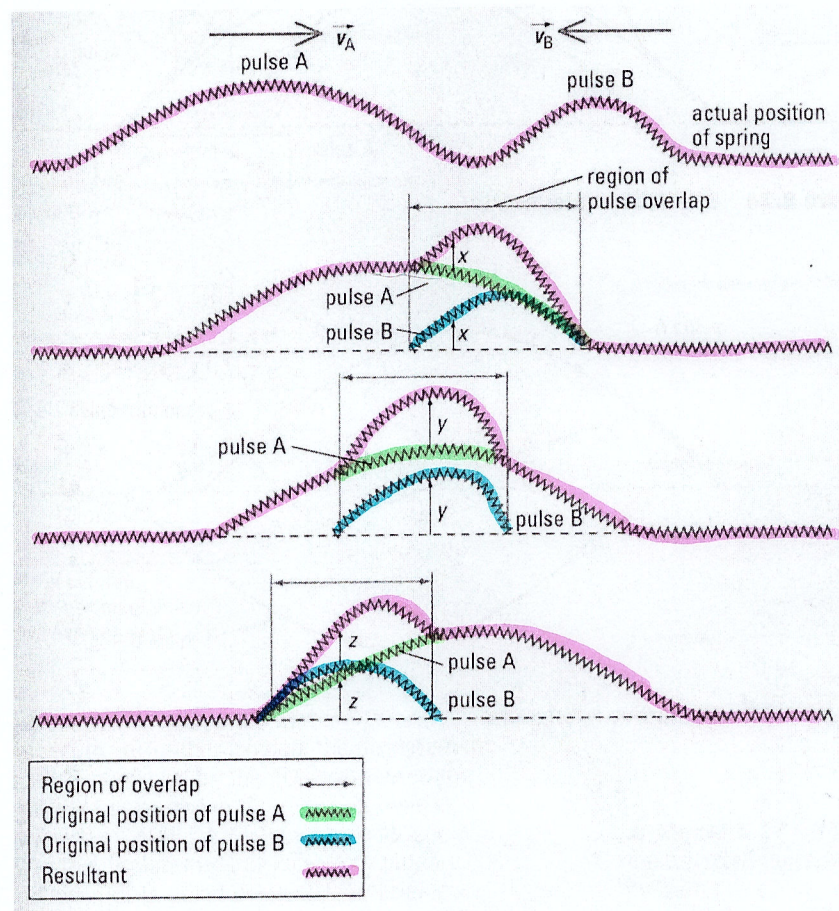


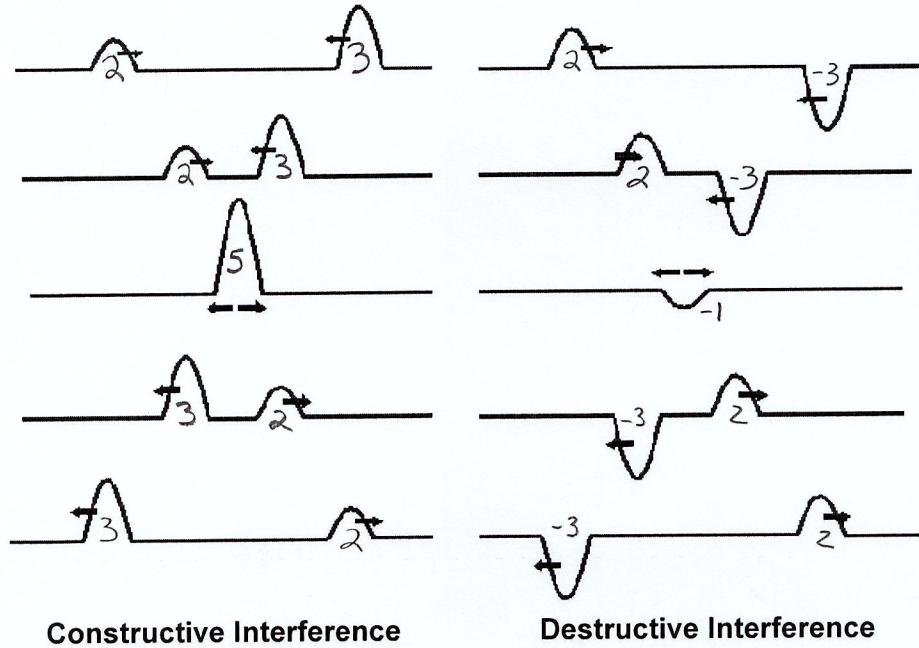
Interference and Superposition

- When waves travel through a medium, it is likely that they will cross paths with other waves
- **Interference** occurs when two waves pass through the same place at the same time
- The **principle of superposition** predicts the new shape and amplitude of the waves when interference occurs
 - * ○ The principle of superposition states that the amplitude of the combined waves at each point of interference is the sum of the amplitudes of the individual waves

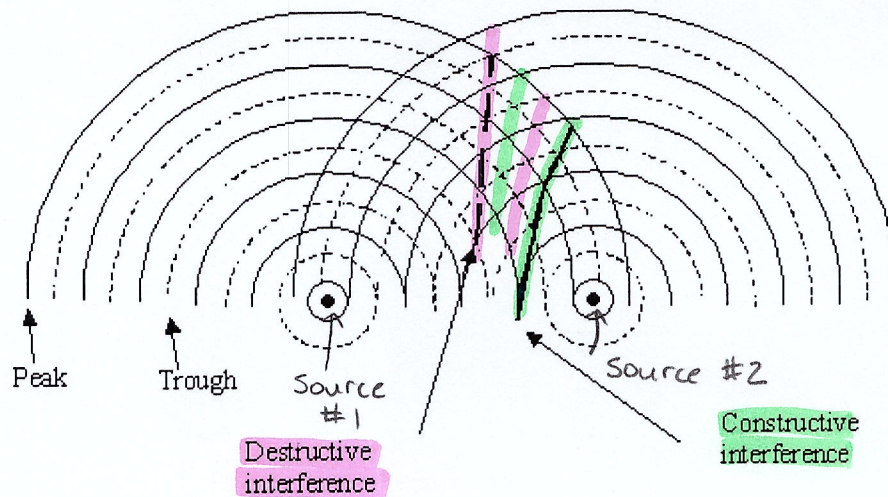


- Usually the amplitude of crests are positive and the amplitude of troughs are negative
- When two waves overlap and the amplitude of the resultant waves is greater than the amplitude of the individual waves, this is known as **constructive interference**
 - When crests from two waves or troughs from two waves overlap, the waves are **in phase** and will produce constructive interference

- When two waves overlap and the amplitude of the resultant waves is less than the amplitude of the individual waves, this is known as **destructive interference**
 - When a crest from one wave overlaps with a trough from a second wave, the waves are **out of phase** and will produce destructive interference



- A unique interference pattern is created by two in phase point sources that are separated by a distance



Now try pg.291 #3-5, 7