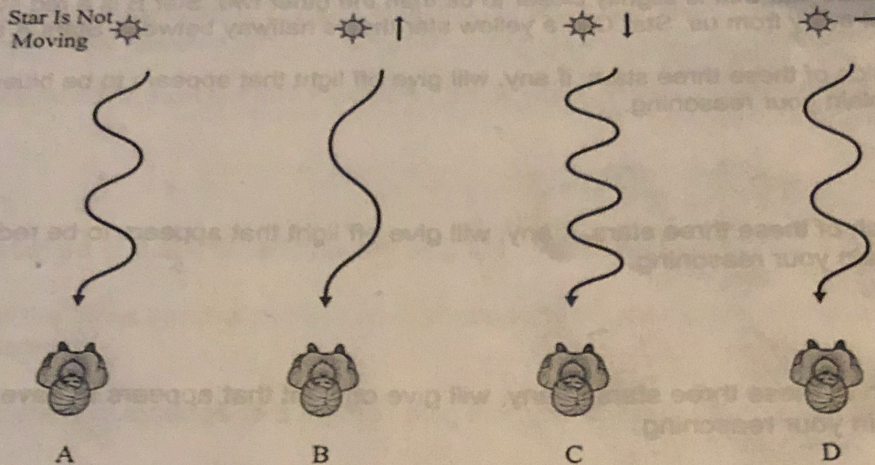


Because of the Doppler effect, light emitted by an object can appear to change wavelength due to its motion toward or away from an observer. When the observer and the source of light are moving toward each other, the light is shifted to shorter wavelengths (blueshifted). When the observer and the source of light are moving away from each other, the light is shifted to longer wavelengths (redshifted).

### Part I: Motion of Source



1) Consider the situations shown (A–D).

a) In which situation will the observer receive light that is shifted to shorter wavelengths?

b) Will this light be blueshifted or redshifted for this case?

c) What direction is the star moving relative to the observer for this case?

2) Consider the situations shown (A–D).

a) In which situation will the observer receive light that is shifted to longer wavelengths?

b) Will this light be blueshifted or redshifted for this case?

c) What direction is the star moving relative to the observer for this case?