

Doppler Shifts

- **Redshift (to longer wavelengths):** The source is moving *away from* the observer
- **Blueshift (to shorter wavelengths):** The source is moving *towards* the observer

$$\frac{\Delta\lambda}{\lambda_0} = \frac{v}{c}$$

$\Delta\lambda$ and v are...

DIRECTLY PROPORTIONAL

$\Delta\lambda$ = wavelength shift

λ_0 = wavelength if source is not moving

v = velocity of source

c = speed of light

The Planet Venus rotates ~ 4 times slower than the planet Mercury. Which shows a bigger Doppler Shift due to rotation and by how much?

- a) The strength of Venus' Doppler shift is one quarter that of Mercury
- b) The strength of Venus' Doppler shift is one half that of Mercury
- c) The strength of Venus' Doppler shift is twice that of Mercury
- d) The strength of Venus' Doppler shift is four times that of Mercury
- e) The strength of Venus' Doppler shift is sixteen times that of Mercury