

Answer on Question #46352 – Physics – Other

Question.

When refraction occurs which of the following remains unchanged?

wave number

wavelength

velocity

frequency

Solution.

Refraction is the change in direction of a wave due to a change in its transmission medium. At the boundary between the media, the wave's phase velocity is changed, usually causing a change in direction. Its wavelength increases or decreases but its frequency remains constant. For example, a light ray will refract as it enters and leaves glass, assuming there is a change in refractive index. A ray traveling along the normal (perpendicular to the boundary) will change speed, but not direction.

So, only frequency remains constant, if refraction occurs.

Answer.

frequency