

Answer on Question #74657, Physics / Other

Question An observer is moving towards a stationary source of sound with velocity one-fifth of the velocity of sound. What is the percentage increase in the apparent frequency?

Solution The apparent frequency ν is related to real ν_0 as:

$$\nu = \nu_0 \frac{s}{s - v}$$

where s is speed of sound and v is speed of observer. Hence, in our case

$$\nu = \nu_0 \frac{s}{s - 1/5s} = 1.25\nu_0$$

So, the frequency will increase by 25%.