

Answer on Question 43300 – Math – Trigonometry

$$Y=25\cos(3.14t/3)+27$$

What is the frequency of motion in hertz?

Solution.

General form of harmonic law of motion is $y= A \cos(\omega t+ \delta)+ B$.

We are given $y= 25 \cos(3.14 \frac{t}{3})+ 27= 25 \cos(\frac{\pi}{3} t)+ 27$, thus $\omega= \frac{\pi}{3}$ - this is the angular frequency.

The relation between angular frequency and frequency is $\omega= 2\pi\nu$.

Thus, frequency (in hertz) is $\nu= \frac{\omega}{2\pi}= \frac{\pi}{3} \cdot \frac{1}{2\pi}= \frac{1}{6} Hz \approx 0.167 Hz$.