22   The period of an electromagnetic wave is 1.0 ns.
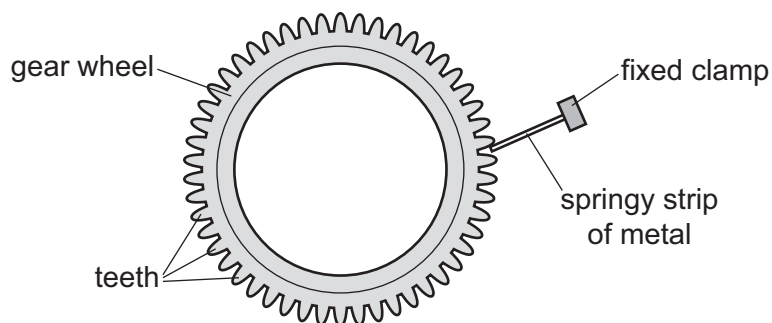
What are the frequency and wavelength of the wave?

	frequency / Hz	wavelength / m
A	1.0	3.0×10^8
B	1.0×10^6	300
C	1.0×10^9	0.30
D	1.0×10^{12}	3.0×10^{-4}

23   Which statement about progressive longitudinal waves is **not** correct?

   A   The oscillations of the particles are parallel to the direction of travel of the wave energy.

   B   They have a series of nodes and antinodes.

   C   They need a medium through which to travel.

   D   They transfer energy.

24   A bicycle gear wheel is a disc with 50 'teeth' equally spaced around its edge, as shown. The gear wheel is rotated 10 times each second. A springy strip of metal is vibrated by the rotating 'teeth'. The metal strip produces a sound of frequency that is equal to the frequency of vibration of the strip.

The speed of sound in air is $330 \, \text{m s}^{-1}$.

What is the wavelength of the emitted sound?

   A   0.66 m   B   1.5 m   C   6.6 m   D   500 m