

1. (a) The angular wave number is

$$k = \frac{2\pi}{\lambda} = \frac{2\pi}{1.80\text{ m}} = 3.49\text{ m}^{-1} .$$

- (b) The speed of the wave is

$$v = \lambda f = \frac{\lambda\omega}{2\pi} = \frac{(1.8\text{ m})(110\text{ rad/s})}{2\pi} = 31.5\text{ m/s} .$$