Introduction to Modern Optics

Grant R. Fowles

October 19, 2007

1 Chapter 1 Problems

1.1 Problem 1.1

Express the wave function for one-dimensional harmonic waves in terms of the following pairs of parameters:

(a) Frequency and wavelength

(b) Period and wavelength

(c) Angular frequency and phase velocity

(d) Wavelength and phase velocity

The one-dimensional wave equation can be expressed as:

$$U(x,t) = U_0 \cos(k \cdot r - \omega t) \tag{1}$$