

# Homework #5

due Tuesday March 4

1. Hirose & Lonngren Chapter 2 #10.
2. Hirose & Lonngren Chapter 2 #11.
3. Hirose & Lonngren Chapter 3 #4.
4. Hirose & Lonngren Chapter 3 #7.
5. A long uniform string of mass density  $0.1 \text{ kg/m}$  is stretched with a force of  $50 \text{ N}$ . One end of the string ( $x=0$ ) is oscillated transversely with an amplitude of  $0.02 \text{ m}$  and a period of  $0.1$  seconds, so that travelling waves in the  $+x$  direction are set up.
  - (a) What is the velocity of the waves?
  - (b) What is their wavelength?
  - (c) If at the driving end ( $x=0$ ) the displacement ( $y$ ) at  $t=0$  is  $0.01 \text{ m}$  with  $dy/dt$  negative, what is the equation of the traveling waves?
6. Hirose & Lonngren Chapter 4 #4.
7. Hirose & Lonngren Chapter 4 #11.