1) Remembering that the vertical resolution of a seismic wave is approximately equal to one quarter of its wavelength, what frequency seismic source is necessary to resolve the top and bottom of a bed with velocity 2200 m/sec with the following thicknesses \((\lambda = V/f)\):

   a) 1 meter
   b) 20 meters
   c) 125 meters

2) Calculate the approximate radius of the Fresnel zone for the following two seismic surveys:

   a) Reflector depth = 20 km, dominant frequency of seismic source = 10 Hz, velocity = 6.5 km/sec

   b) Reflector depth = 100 m, frequency = 10 kHz, \(V = 2\) km/sec

3) A marine seismic survey uses a 12-channel receiver array with geophone spacing of 25 m. For a shot interval of 50 m, what is the common mid-point (CMP) spacing? Draw a diagram showing the survey with 6 shots, with the first shot being 10 m in front of the receiver array (remember that the array moves along with the shots). What is the maximum fold for this shooting geometry?