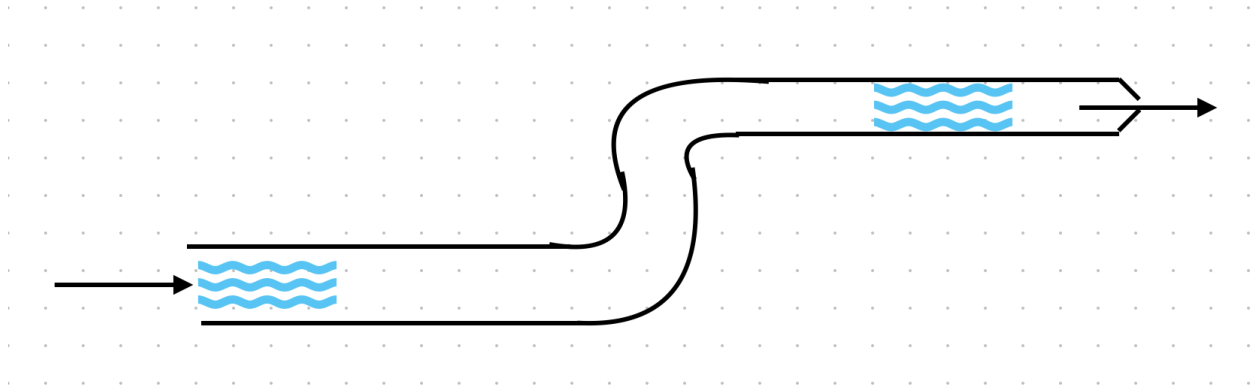
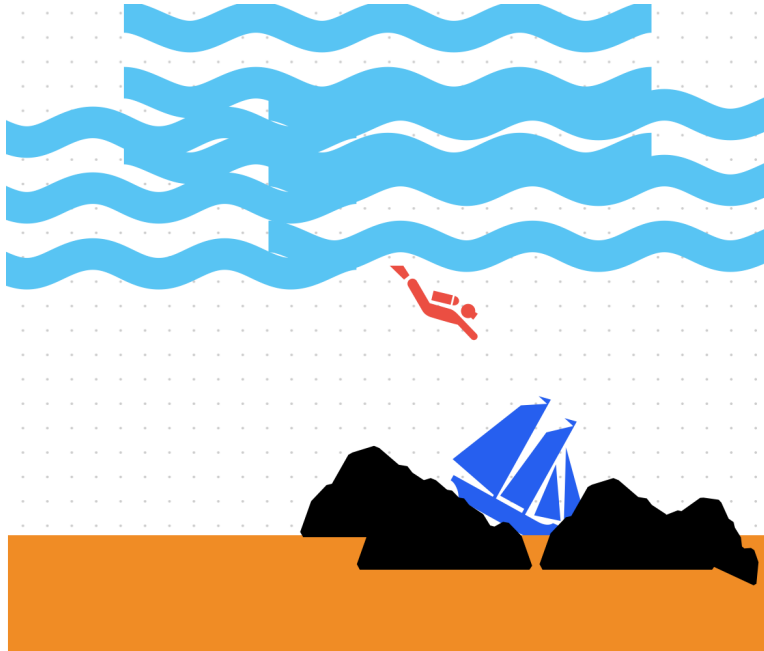


PHYS 211 PLT
Fluid Dynamics and Statics

1) Given the following piping system below, find the increase in height y_2 of the right tube. Let $P_1 = 10 \text{ kPa}$, $P_2 = 5 \text{ kPa}$, $V_1 = 4 \text{ m/s}$, $V_2 = 2 \text{ m/s}$, $\rho = 997 \text{ kg/m}^3$. Let the height of the left tube, y_1 , be the ground ($y_1 = 0$).



2) A diver dives deep below the ocean to study a sunken ship as shown.



Suddenly on the way down, they become super interested in hydrostatic pressures and decide to measure the pressure at a height of 25 m below the surface of the ocean.

- a) What is the pressure that the diver measures?
- b) The maximum pressure that the diver's oxygen tank can handle is 350 kPa. Should the diver continue to dive towards the sunken boat? Explain why.

3) A wave on a string is described by the equation:

$$y(x, t) = 0.05 \cos(3x - 2t)$$

(a) Determine the direction of wave propagation.

(b) Find the wavelength and frequency of the wave.

4) A string is under a tension of 50 N and has a mass per unit length of 0.02 kg/m.

(a) Calculate the speed of a wave traveling on this string.

(b) If the wave frequency is 10 Hz, what is the wavelength?

