A tank 5m high is half filled with water and then is filled to the top with oil of density 0.85 g cm cube. What is the pressure at the bottom of the tank due to these liquid?

Solution:

Pressure at the bottom of the $tank\ (P) = pressure\ by\ water\ level + pressure\ by\ the\ oil = h_1 d_1 g + h_2 d_2 g$.
Given that

$$h_1 = h_2 = 2.5m$$
$$d_1 = 1000\frac{kg}{m^3}$$
$$d_2 = 850\frac{kg}{m^3}$$
$$g = 9.8\frac{m}{s^2}$$
$$P = 9.8 * (1000 * 2.5 + 850 * 2.5) => P = 45325\ Pa \approx 4.5\ kPa.$$

Answer: $P \approx 4.5\ kPa$.