

During a trip to the beach ($P_{\text{atm}} = 1 \text{ atm} = 101.3 \text{ kPa}$), a car runs out of gasoline, and it becomes necessary to siphon gas out of your friend's car. The siphon is a small-diameter hose, and to start the siphon, it is necessary to insert one siphon end in the car's full gas tank, fill the hose with gas by way of suction, and then place the other end of the siphon hose in an emergency gas can that is below the level of the car's gas tank. The difference in pressure between point 1 (at the free surface of the fuel in the car's gas tank) and point 2 (at the outlet of the siphon tube) will cause the liquid to flow from the higher to the lower elevation. Point 2 is located 0.75 m below point 1 in this case, and point 3 is located 2 m above. The siphon hose inside diameter is 4 mm and the friction loss of the liquid inside the siphon is to be disregarded. Determine (a) the minimum time (in seconds) to withdraw 4 L of gasoline from the tank to the gas can, and (b) the absolute pressure of the fluid at point 3. The density of gasoline is 750 kg/m^3 .

