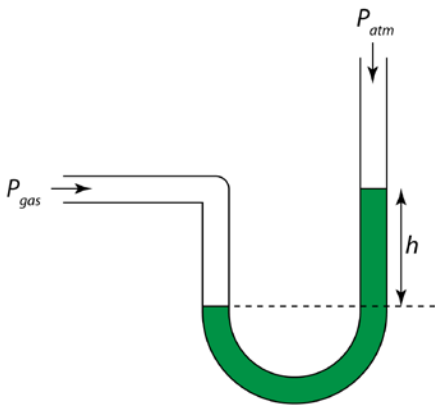




# Manometer

## Manometer



$$P = P_{atm} + h\rho g$$

$P_{gas}$  = Pressure (Pa or  $N m^{-2}$ )

$P_{atm}$  = Atmospheric Pressure (Pa or  $N m^{-2}$ )

$h\rho g$  = pressure of the mercury column (Pa or  $N m^{-2}$ )

1. There are a few points we need to know when using a manometer
  - a. Difference in gas pressure at difference level can be ignored.
  - b. Pressure on the surface of liquid is equal to the gas pressure in contact.
  - c. Pressure that cause by liquid =  $h\rho g$ .
  - d. For a given liquid, the pressures at any point of the same level are the same.
  - e. For different liquid with different density, pressure at two at same level will be different.

### Example 1

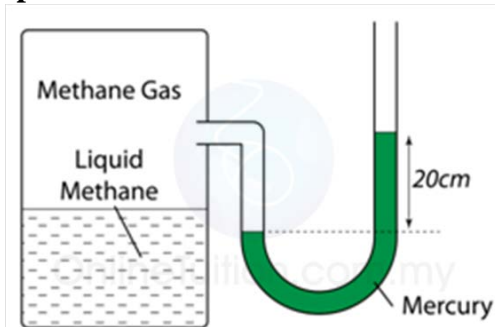


Figure above shows a manometer containing mercury connected to a tank with methane liquid and gas. Find the pressure of the gas supply in the units cmHg and Pa.

[Density of mercury =  $13.6 \times 10^3 \text{ kg m}^{-3}$ ;  
atmospheric pressure = 76 cmHg]

[96 cmHg; 130,560Pa]

[\[Step by step solution\]](#)

### Example 2

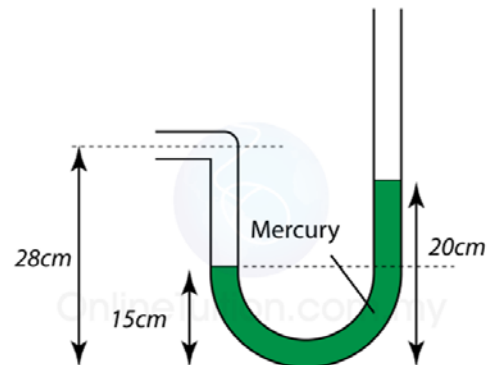


Figure above shows the mercury levels in a manometer used to measure the pressure of a gas supply. How much is the gas pressure greater than the atmospheric?

[5 cmHg]

[\[Step by step solution\]](#)