i have a tank which is at a pressure of 3 atmospheres, has a volume of 6 lilters and a tempature of 300k. how many moles of gas are in that tank?

Answer:

According to the Ideal Gas Law:

$$PV = nRT;$$

Therefore:

$$n = \frac{PV}{RT}.$$

In our case,

P= 3 atm;

V= 6 L;

T= 300K;

R=0.082057 L * atm * K^{-1} mol^{-1} (constant).

So,

$$n = \frac{3\ atm * 6\ L}{0.082057\ \dfrac{L * atm}{K * mol} * 300K} = 0.7312\ mol$$