1. From the ideal gas law \( pV = nRT \), calculate how many molecules are contained in a cubic centimeter (cm\(^3\)) of air at a pressure of 1013.25 mb and a temperature of 15 °C? 
\( (R = 8.3145 \text{ J-mol}^{-1}\text{-K}^{-1}; N_A = 6.022 \times 10^{23} \text{ molecules/mol}) \)

**Answer:** \( 2.55 \times 10^{19} \) molecules

2. How many oxygen molecules are there in a cm\(^3\) of air at a pressure of 1013.25 mb and a temperature of 15 °C?

**Answer:** \( 5.35 \times 10^{18} \) molecules