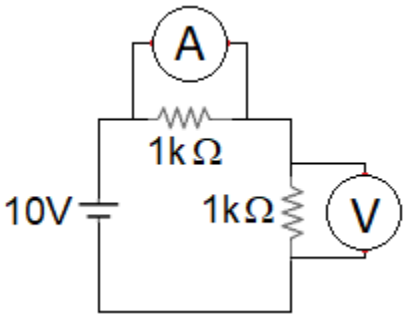
Physics II

Voltmeter and Ammeter

Problem 1.- In the circuit shown below, calculate the readings of the ammeter A and the voltmeter V, which are ideal instruments.



Solution: The ideal ammeter behaves like a short-circuit. It should not be connected in parallel with the resistance. The ideal voltmeter, instead, behaves as an open circuit. The measurements will be:

Ammeter: $I = \dfrac{10\text{V}}{1\text{k}\Omega} = 10\text{mA}$

Voltmeter: $V = RI = 1\text{k}\Omega \times 10\text{mA} = 10\text{V}$