1. The Ideal Op Amp

What is it? - a wideband, high gain DC amplifier

Because of the way they are constructed, op amps are extremely versatile. In fact their performance approaches the ideal.

From a signal point of view, the op amp is represented as shown below:

![Op Amp Diagram]

The input-output relationship is:

\[ V_o = A_{OL}(V_2 - V_1) \]

but, how close to ideal is the op amp?
An ideal amplifier would require the following characteristics:

1. **Infinite gain**
   
   \[ A_{OL} = \infty \]

   Control the circuit gain by "external" means (i.e., feedback).

2. **Zero output impedance**