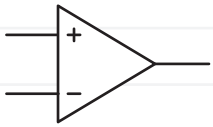


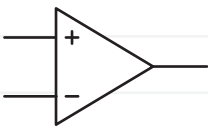
Operational amplifiers

The operational amplifier is an extremely useful device. They amplify, and so are active elements that require an external power supply (usually + and -).

Op-amps use the concept of **feedback**, in which the device's output is "fed back" to its input.

We use the symbol  to denote an op-amp circuit. As we have here, we nearly always suppress the op-amp power supply in the diagram.

Basic operation



Operating rules

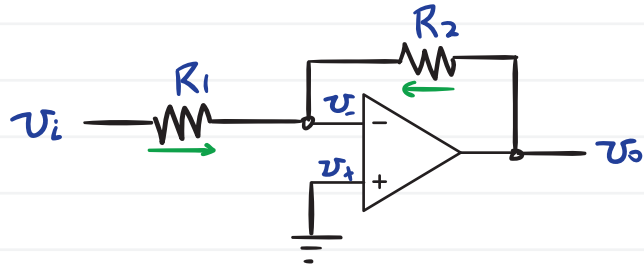
We can get an excellent idea of how an op-amp works by approximating its operation with the following two rules.

Rule I

Rule II

Example: the inverting amplifier

What is $\frac{v_o}{v_i}$, given the inverting amplifier in the diagram?



Solution