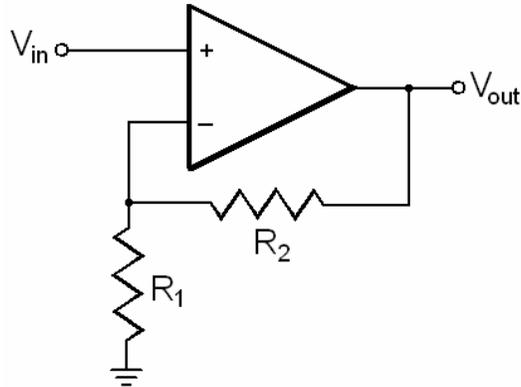# Problem T9

Consider the usual non-inverting amplifier op-amp circuit, shown below.

You will recall that, for an ideal op-amp, the circuit gain is

$$V_{out}/V_{in} = 1 + (R_2/R_1) .$$

This can be arbitrarily large, depending on your choice of resistors. Now assume that the op-amp has a gain of A=1.0 (instead of infinity) and derive the formula for the circuit gain V_{out}/V_{in}. Can V_{out}/V_{in} still be arbitrarily large?

Hint: Golden Rule #1, which says that $V_+ = V_-$, can no longer hold. Instead $V_+ - V_- = V_{out}$.