BASIC OP-AMP CONFIGURATIONS

OPERATIONAL AMPLIFIER

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TOPIC OUTLINE

Basic Op-Amp Configurations

- **Non-inverting Op-Amp**
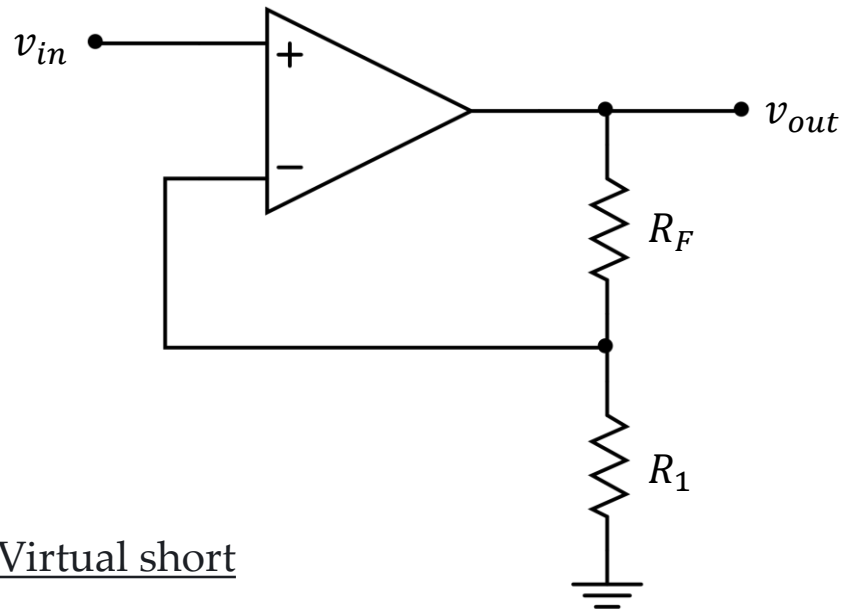
- **Inverting Op-Amp**

- **Summing Op-Amp**

BASIC OP-AMP CONFIGURATIONS

NON-INVERTING AMPLIFIER

Derivation

v_{in}

v_{out}
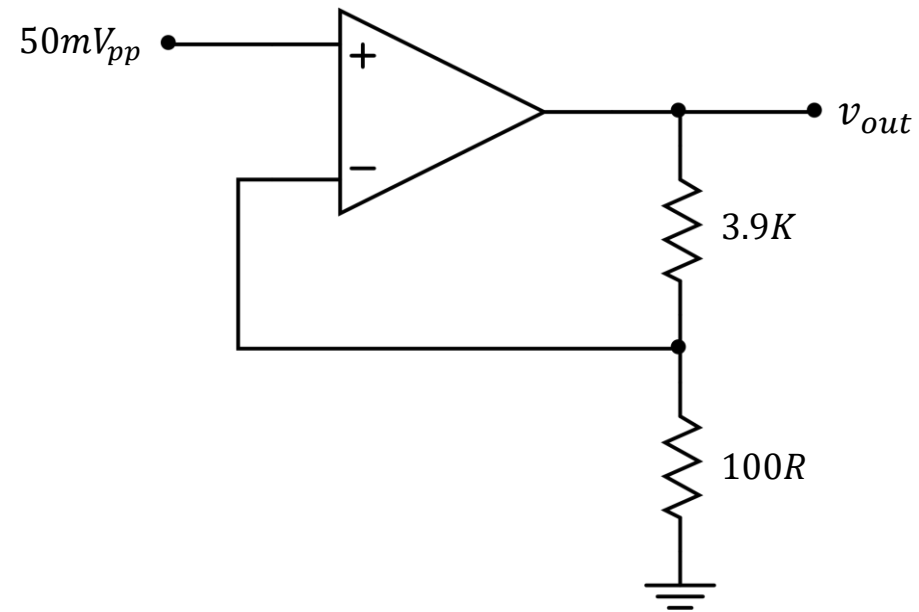
R_F

R_1

Virtual short

since $v^+ \approx v^-$

EXERCISE

What is the closed-loop gain and the output voltage of the given op-amp circuit?

Solution

INVERTING AMPLIFIER

Derivation

R_F

R_1

v_{in}

v_{out}

Virtual ground
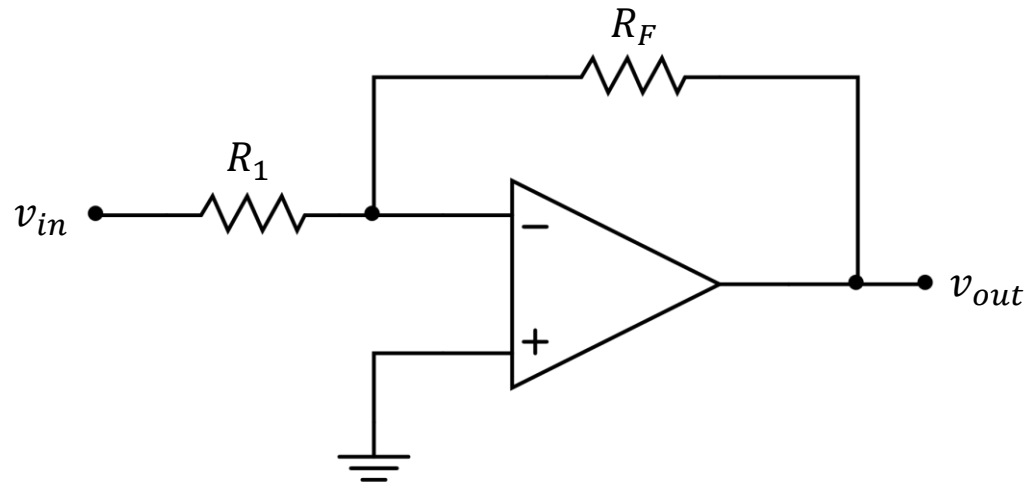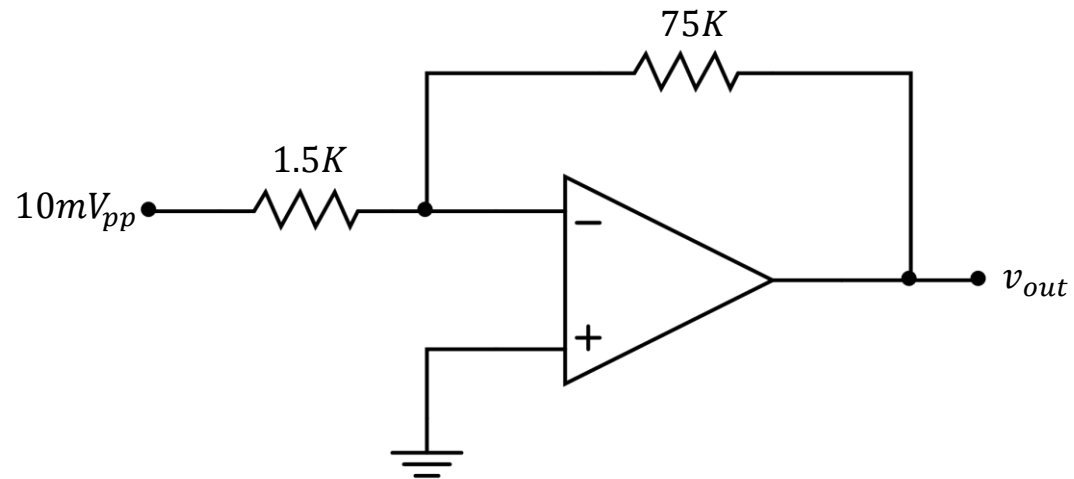
since $v^+ \approx v^-$

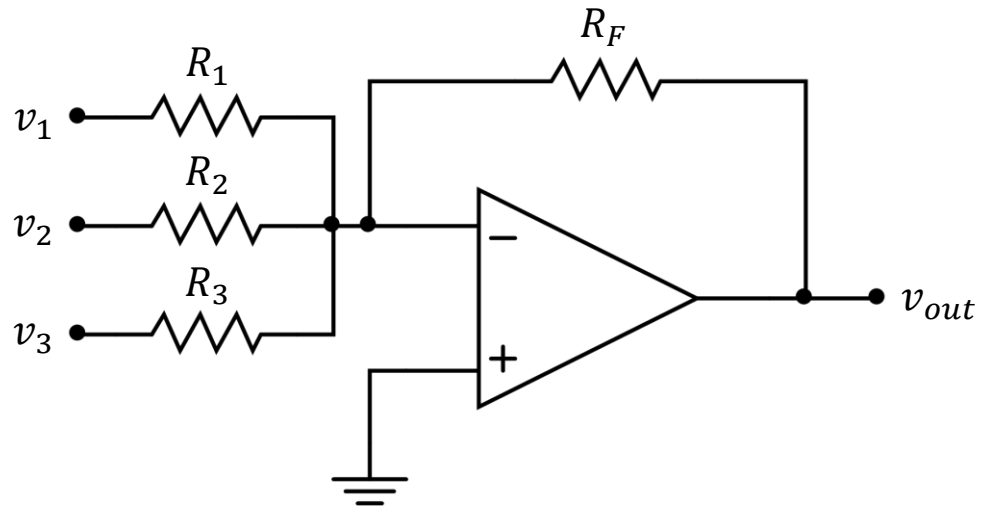# EXERCISE

What is the closed-loop gain and the output voltage
of the given op-amp circuit?

Solution

SUMMING AMPLIFIER

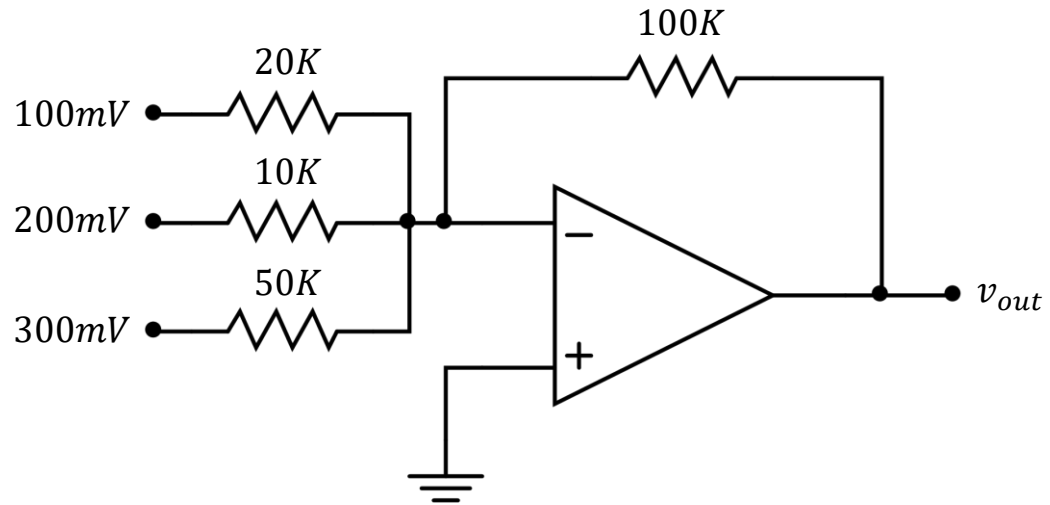<u>Derivation</u>

<u>Virtual short</u>

since $v^+ \approx v^-$

EXERCISE

What is the closed-loop gain and the output voltage
of the given op-amp circuit?

Solution

LABORATORY