

DISCUSSION 3

6/13/14

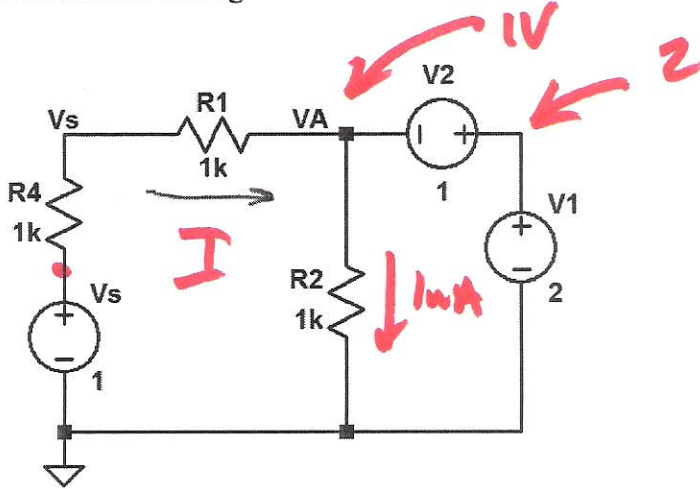
Quiz #4 EE 220 Summer 2014

Name: _____

Closed book and notes.

Show your work for credit!

1. Find the current through R1 in the direction indicated.



$$\frac{1 - 1}{2k} = \underline{\underline{I = 0}}$$

1)

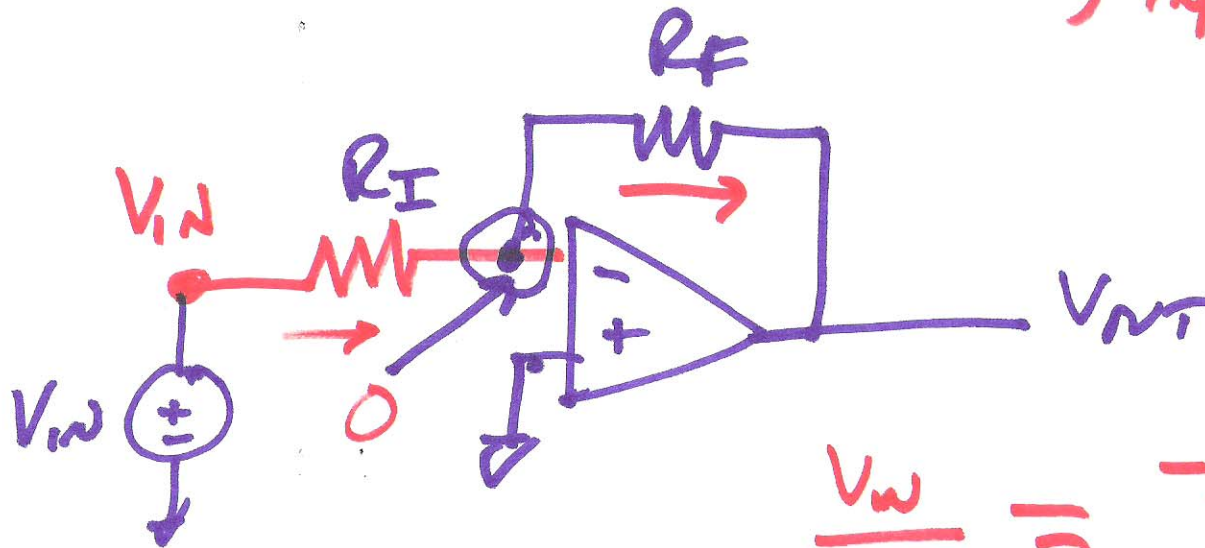
Inverting topology

$V_m = \text{inverting}$



OP-AMP ideal

$V_p = \text{noninverting input}$ OP-AMP $A_{OL} = \infty$

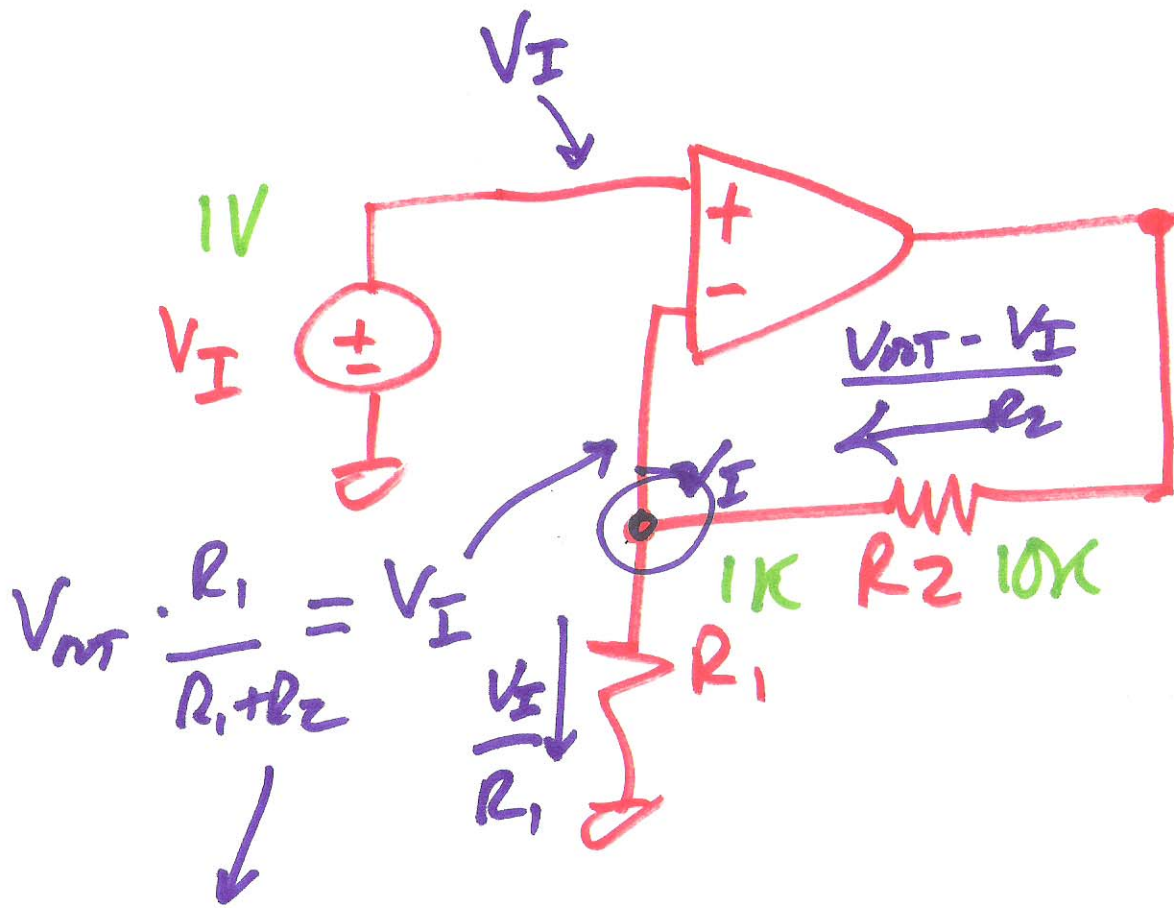


$$\frac{V_{out}}{V_{in}} = -\frac{R_F}{R_I}$$

$$\frac{V_w}{R_I} = -\frac{V_{out}}{R_F}$$

2)

NON-inverting topology

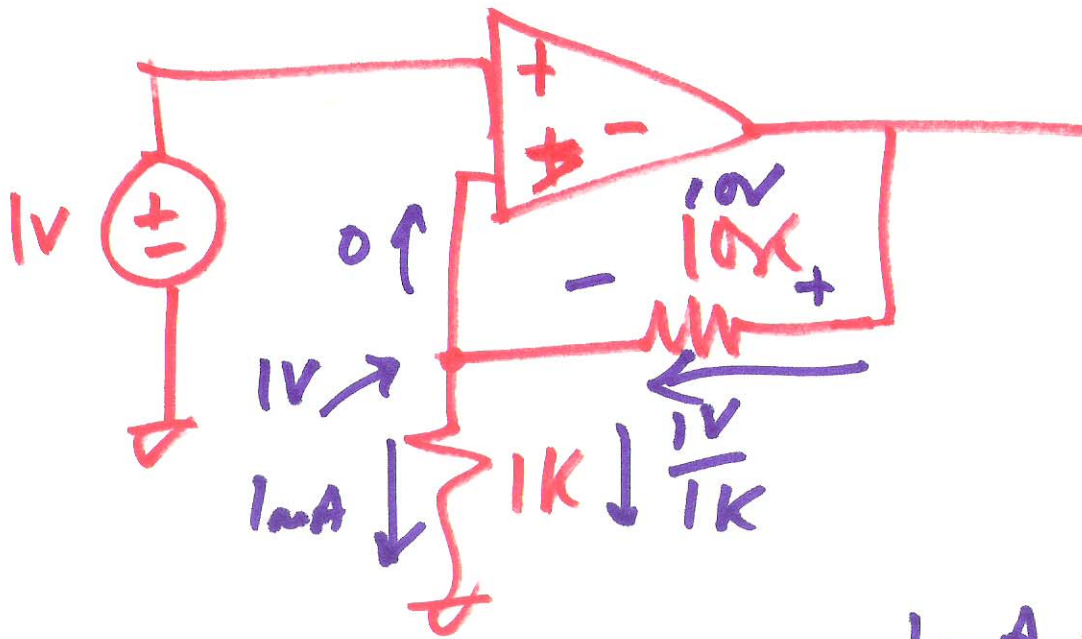


$$\frac{V_{OUT} - V_I}{R_2} = \frac{V_I}{R_1}$$

$$V_{OUT} = V_I \left(\frac{R_2}{R_1} + 1 \right)$$

$$\frac{V_{OUT}}{V_I} = \frac{R_1 + R_2}{R_1} = 1 + \frac{R_2}{R_1}$$

$$\frac{V_{OUT}}{V_I} = 1 + \frac{R_2}{R_1}$$



$$1\text{mA} \cdot 10\text{K}$$

$$10^{-3} \cdot 10^4 = \underline{\underline{10\text{V}}}$$

