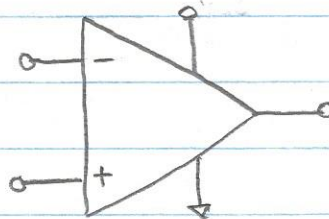


BASICS OF OPAMPS

WZAEW

- EASY WAY TO UNDERSTAND THE
OPERATION OF MOST OPAMP CIRCUITS

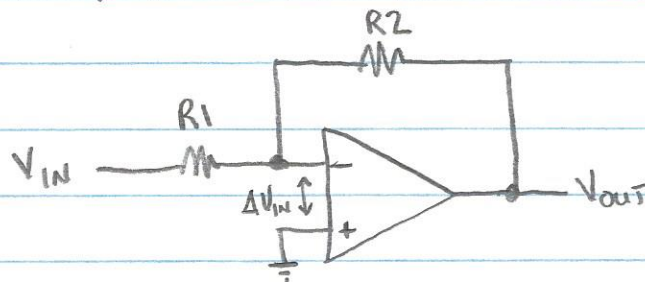


SOME "IDEAL" PROPERTIES:

- ① INPUTS DRAW NO CURRENT
- ② VOLTAGE GAIN IS HUGE

- TINY INPUT VOLTAGE DIFFERENCE CAUSES
A HUGE OUTPUT VOLTAGE SWING

NEARLY ALL OPAMP CIRCUITS USE NEGATIVE FEEDBACK



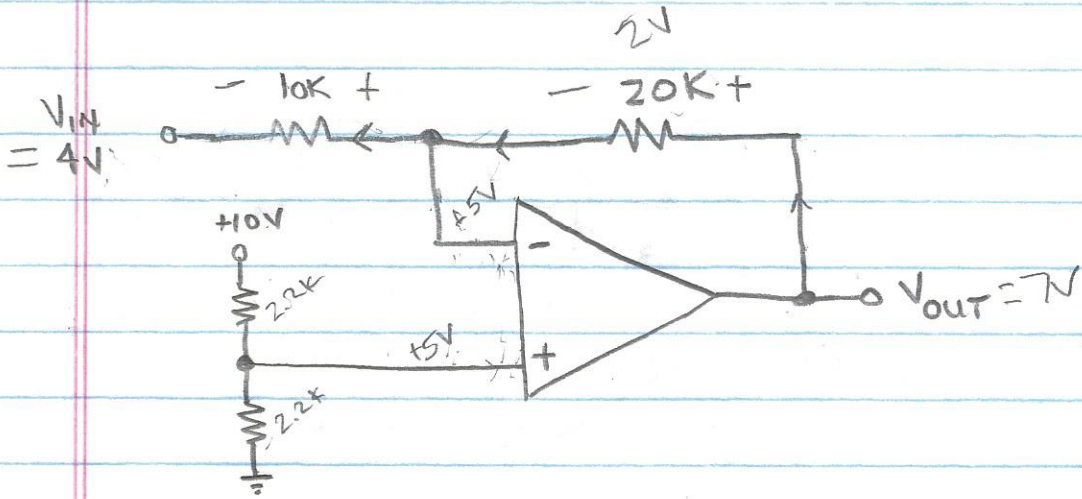
HERE IS THE KEY!

- NEGATIVE FEEDBACK KEEPS $\Delta V_{IN} \approx 0$

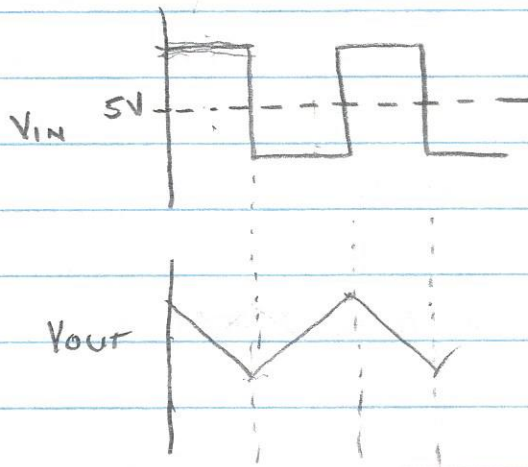
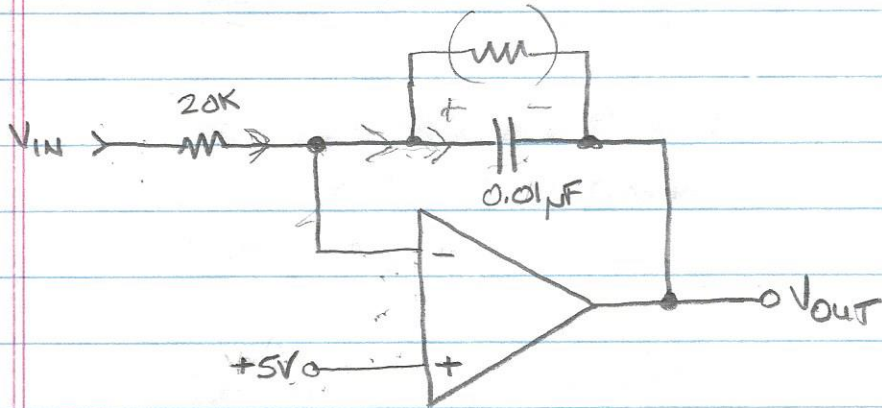
- OR -

- THE OUTPUT WILL DO WHATEVER IT CAN
TO MAKE THE INPUT VOLTAGES EQUAL

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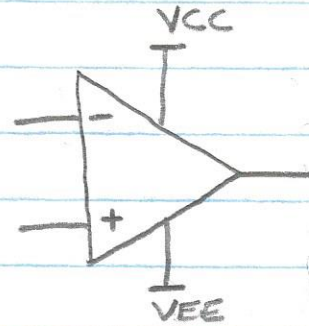


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NON-IDEAL "REALITIES" OF OPAMPS

- INPUT VOLTAGES MIGHT HAVE TO BE KEPT AWAY FROM SUPPLY RAILS



- OUTPUT VOLTAGE MIGHT NOT BE ABLE TO SWING TO THE SUPPLY RAILS

- OUTPUT HAS LIMITED CURRENT CAPABILITY

- LOTS OF OTHER DETAILS

OTHER NOTES

- SINGLE SUPPLY OR DUAL SUPPLY ?

- RAIL TO RAIL

- SINGLE, DUAL, QUAD