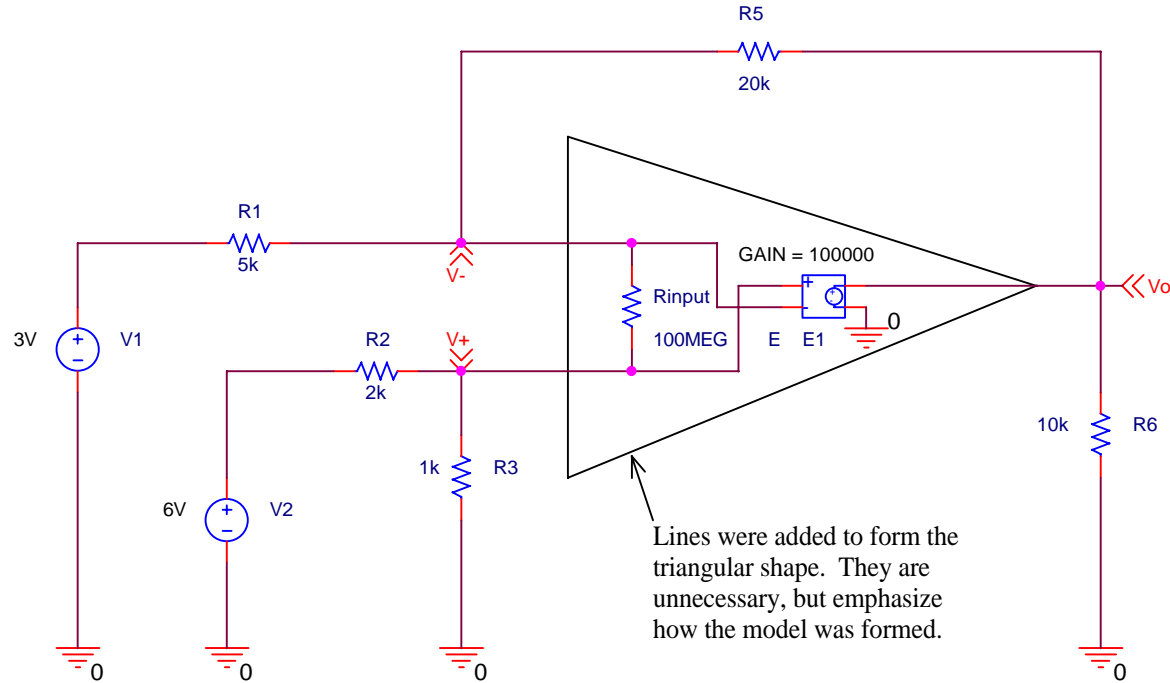


Operational Amplifier Circuit using an Ideal Op-amp Model

Purpose: Analysis of the op-amp circuit shown on the following page yields $V_o = -2V$. Use PSPICE to analyze the circuit using an ideal model to replace the op amp.

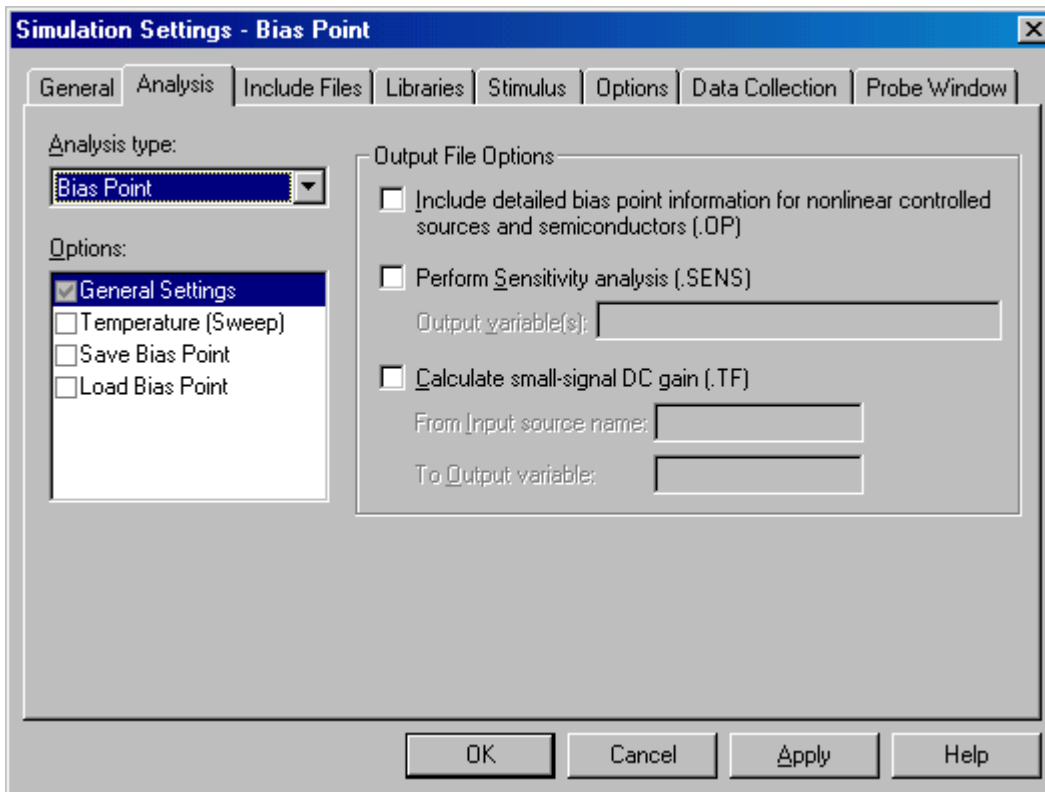
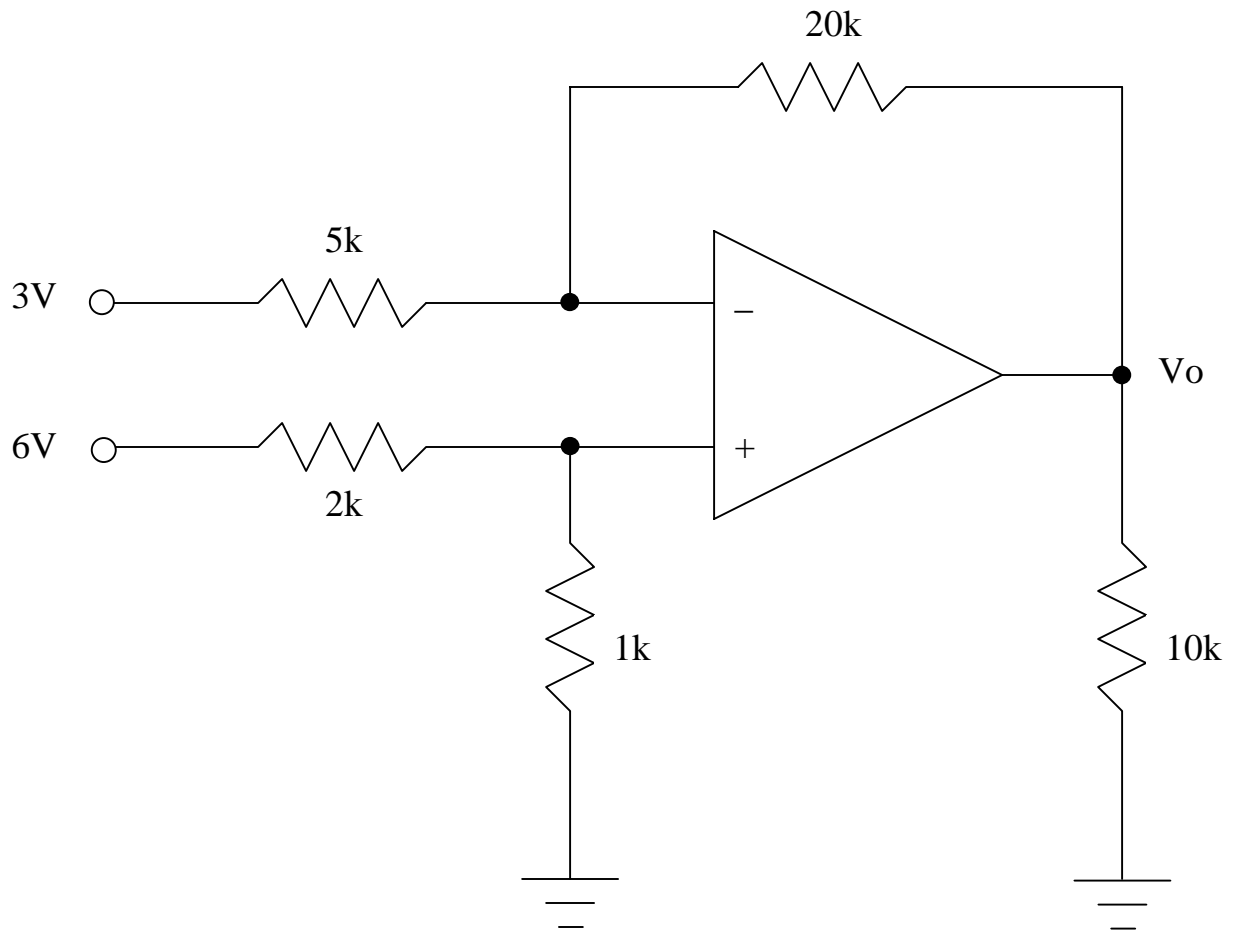
Analysis: Since only the output node voltage V_o is needed, a bias point analysis will be used.



Notes:

- 1) The near infinite input resistance of an op amp is modeled by $R_{input} = 100MEG$.
- 2) The near infinite voltage gain of an op amp is approximated by 100,000.

Title		
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A	<Doc>	<RevCode>
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**** 02/12/ 18:32:38 ***** Evaluation PSpice (Mar 1999) *****

** circuit file for profile: Bias Point

**** CIRCUIT DESCRIPTION

** WARNING: THIS AUTOMATICALLY GENERATED FILE MAY BE OVERWRITTEN BY SUBSEQUENT PROFILES

*Libraries:

* Local Libraries :

* From [PSPICE NETLIST] section of pspiceev.ini file:
.lib nom.lib

*Analysis directives:

.PROBE

.INC "op amp - ideal-SCHEMATIC1.net"

**** INCLUDING "op amp - ideal-SCHEMATIC1.net" ****

* source OP AMP - IDEAL

V_V1 N00123 0 DC 3V AC 1Vac
V_V2 N00117 0 DC 6V AC 1Vac
R_R1 N00123 V- 5k
R_R2 N00117 V+ 2k
R_R3 0 V+ 1k
R_Rinput V+ V- 100MEG
R_R5 VO V- 20k
E_E1 VO 0 V+ V- 100000
R_R6 0 VO 10k

.END

**** 02/12/00 18:32:38 ***** Evaluation PSpice (Mar 1999) *****

** circuit file for profile: Bias Point

**** SMALL SIGNAL BIAS SOLUTION TEMPERATURE = 27.000 DEG C

NODE	VOLTAGE	NODE	VOLTAGE	NODE	VOLTAGE	NODE	VOLTAGE
(V+)	2.0000	(V-)	2.0000	(VO)	-1.9999	(N00117)	6.0000
(N00123)	3.0000						

So Vo = -1.9999V

VOLTAGE SOURCE CURRENTS

NAME	CURRENT
V_V1	-2.000E-04
V_V2	-2.000E-03

TOTAL POWER DISSIPATION 1.26E-02 WATTS

JOB CONCLUDED

TOTAL JOB TIME .27