Op-Amp Practice Problems

Solutions

Problem 1:

Problem 2:

$R_f = 2.24 \, K$ saturates the amplifier at $V_O = 18 \, V$; impossible to saturate amplifier at $V_O = -9 \, V$ (would require negative $R_f$)

Problem 3:

If using ideal op-amp, $R_T=0$ (leave gain as $A$ and take limit towards infinity)

If using op-amp non-ideal (realistic) equivalent circuit, very complicated.

$R_T = \frac{20}{(20*R_i*A+2*R_i*R_o+23*R_i+40*R_o+260)*R_i*(2*R_o+13)}$