

NAME SOLUTIONS

SHOW YOUR WORK

1 a SHUNT-SHUNT (2)

b $1/R_3$ (3)

do

c $R_1 || R_3 \left(\frac{1}{1+x} \right) \frac{2m(R_1 || R_3)}{1 + 2m(1+x)R_5}$ (3)

d $\frac{R_1 || R_3}{1 + 2mR_5}$ (3)

2 a SERIES-SHUNT (2)

b 1 (3)

c 2.9×10^5 (3)

d 5Ω (3)

3 _____ (10)

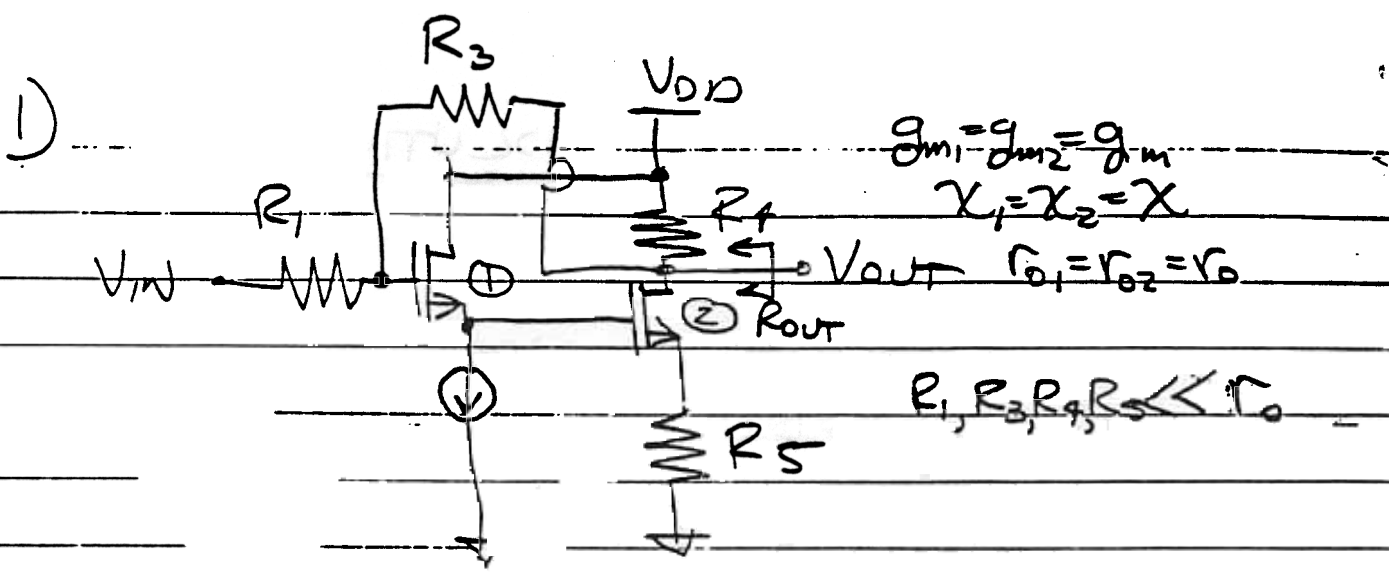
4 C_c 1.1 pf (8)

5 ω_{3dB} 35 kRAD/SEC (8)

6 ω_{3dB} 4 kRAD/SEC (5)

ω_{90} 4 kRAD/SEC (5)

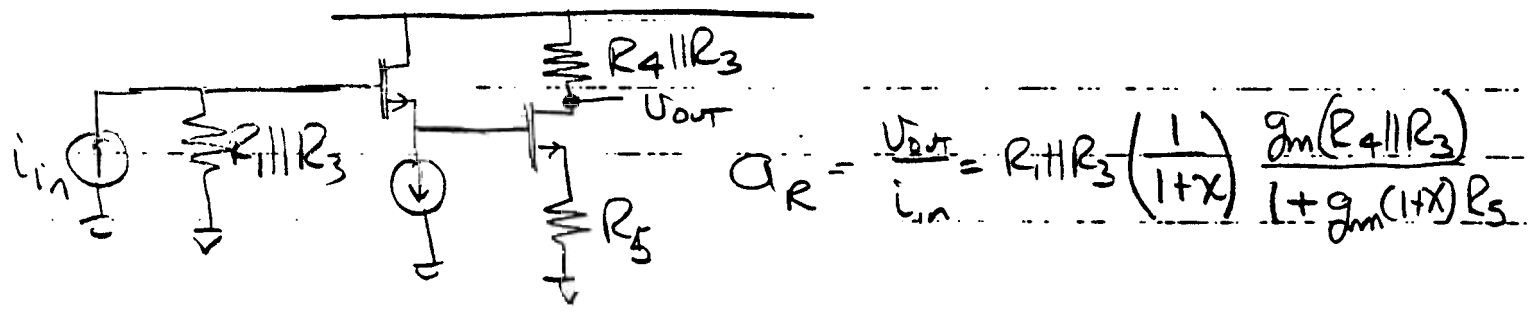
7 $\frac{.4 \text{ MRAD}}{\text{SEC}}$ 50 MRAD/SEC 9 GRAD/SEC (8)



a) WHAT KIND OF FEEDBACK IS THIS
SHUNT-SHUNT

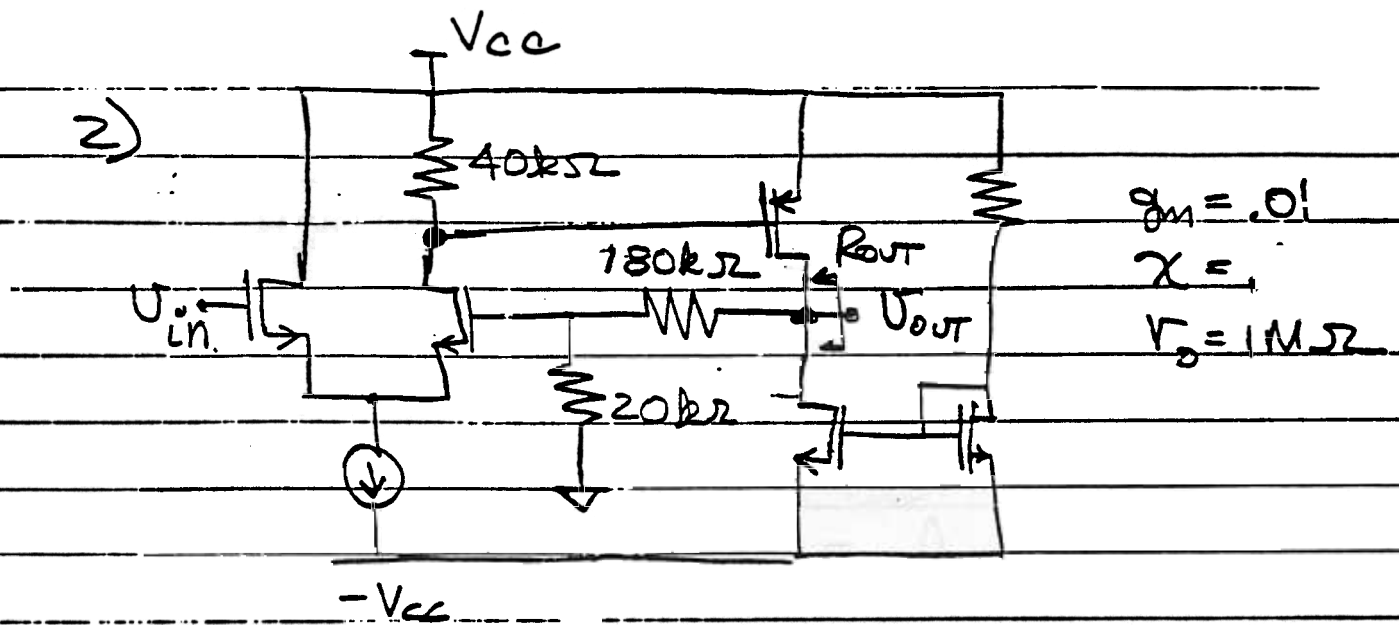
b) WHAT IS f ? $\frac{i_{fb}}{V_{out}} = \frac{1}{R_3}$

c) WHAT IS THE GAIN OF THE
BASIC AMPLIFIER WITH LOADING?



d) WHAT IS R_{out} ?

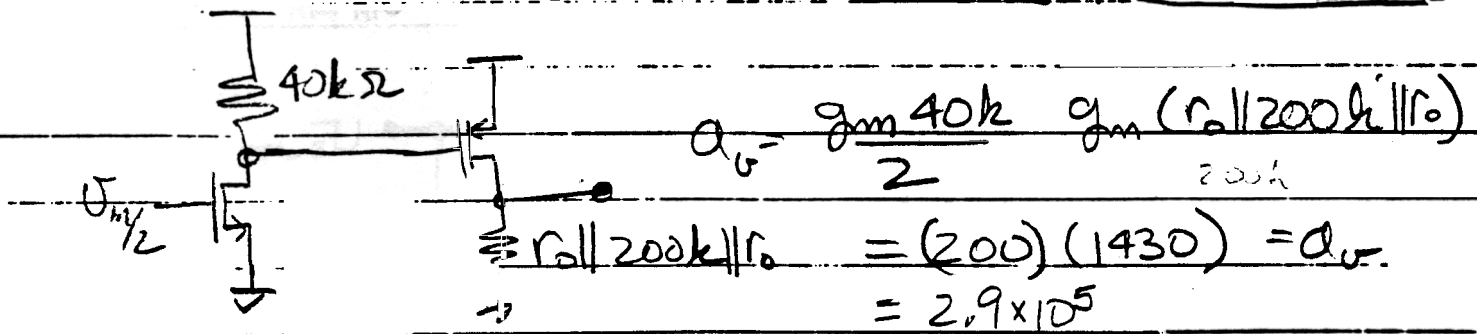
$$\frac{R_4 || R_3}{1 + a_R f}$$



a) WHAT KIND OF FEEDBACK? SERIES-SHUNT

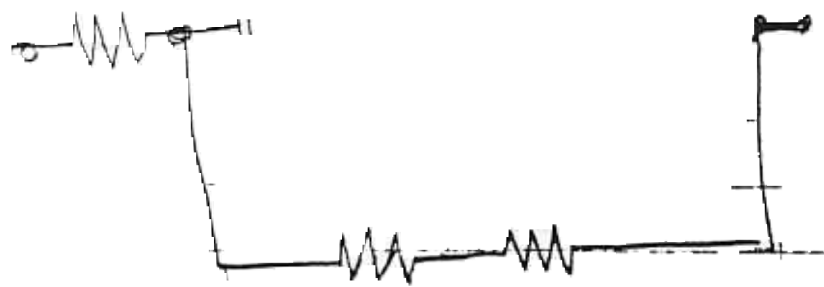
b) WHAT IS F ? .1

c) WHAT IS THE GAIN OF THE BASIC AMPLIFIER WITH LOADING? 2.9×10^5



d) WHAT IS THE OUTPUT RESISTANCE, R_{out} ?
 5Ω

$$\frac{143k}{(1 + .1 a_v)} = \frac{143k}{2.9 \times 10^4} = 5$$



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