

## EE60542 Analog Integrated Circuit Design

Homework	Problems
7	7.12, 8.4, 8.5, and 8.7
8	8.17, 8.23
9	8.20, 9.1, and 9.2

SPICE file for 8.20

```
733 AMP
VCC 1 0 6V
VEE 2 0 -6V
RC1 1 5 2.4K
RC2 1 6 2.4K
Q1 5 3 7 NPN
Q2 6 4 8 NPN
RE1 7 16 640
RE2 8 16 640
Q3 9 6 15 NPN
Q4 10 5 15 NPN
RC3 1 9 1.1K
RC4 1 10 1.1K
Q5 1 10 11 NPN
Q6 1 9 12 NPN
RF1 11 5 7K
RF2 12 6 7K
RL 11 12 2K
Q7 16 17 18 NPN
Q8 17 17 19 NPN
Q9 15 17 20 NPN
Q10 11 17 13 NPN
Q11 12 17 14 NPN
RQ7 18 2 300
RQ8 19 2 1.4K
RQ9 20 2 300
RQ10 13 2 400
RQ11 14 2 400
RBIAS 1 17 10K
.MODEL NPN NPN BF=100 IS=1E-13
VI1 3 0 0V
VI2 4 0 0V
```

Homework	Problems
1	1.8, 1.15, 1.16, 3.2, and 3.5
2	3.8, 3.11, 3.13, 3.16, 3.20, and 3.21
3	4.1, 4.3, 4.5, and 4.20
4	5.11, 5.17, 5.18, 6.1, and 6.3
5	6.4, 6.6, and 6.15
6	6.16, 6.26, 6.27, and 6.29

### SPICE NETLIST FOR PROBLEM 6.26

```

*filename problem6p26
VCC      100  0      15
VEE      200  0     -15
IREF     100  3     20u
Q1       100  8      10    NPN
Q2       100  9      11    NPN
Q3       12   6      10    PNP
Q4       16   6      11    PNP
Q5       12  13     200    NPN
Q6       16  13     200    NPN
Q7       100 12     13    NPN
Q10      6   4      200    NPN
Q11      4   4      200    NPN
Q12     200  4       3    PNP
.MODEL NPN NPN BF=250 IS=5E-15
.MODEL PNP PNP BF=50 IS=2E-15
VI8      8   0     -12.6
VI9      9   0     -12.6  AC    1
VOUT     16  200   1.6

```