# EE 206:  Homework #7

Op Amp Amplifiers.  Due Monday, March 4th

1)  Design an op-amp circuit to implement

   Y = 2X

Simulate this circuit in PartSim with

 • x(t) = 1Vp, 1kHz sine wave

Is Y double X and 180 degrees out of phase?


2) Design an op-amp circuit to implement

   Y = -2X

Simulate this circuit in PartSim with

 • x(t) = 1Vp, 1kHz sine wave

Is Y double X and 180 degrees out of phase?


3)  Design an op-amp circuit to implement

   Y = 2X - 10


4)  Design an op-amp circuit which outputs

 • -10V when R = 1000 Ohms
 • +10V when R = 2000 Ohms


5)  Simulate the circuit for problem #4.  Plot the output voltage for 1000 < R < 2000 Ohms

| R | Vout | | |
|---|---|---|---|
| | Calculated prob 4 - ignoring loading | Calculated including loading | Simulated prob 5 |
| 1000 | | | |
| 1200 | | | |
| 1400 | | | |
| 1600 | | | |
| 1800 | | | |
| 2000 | | | |