

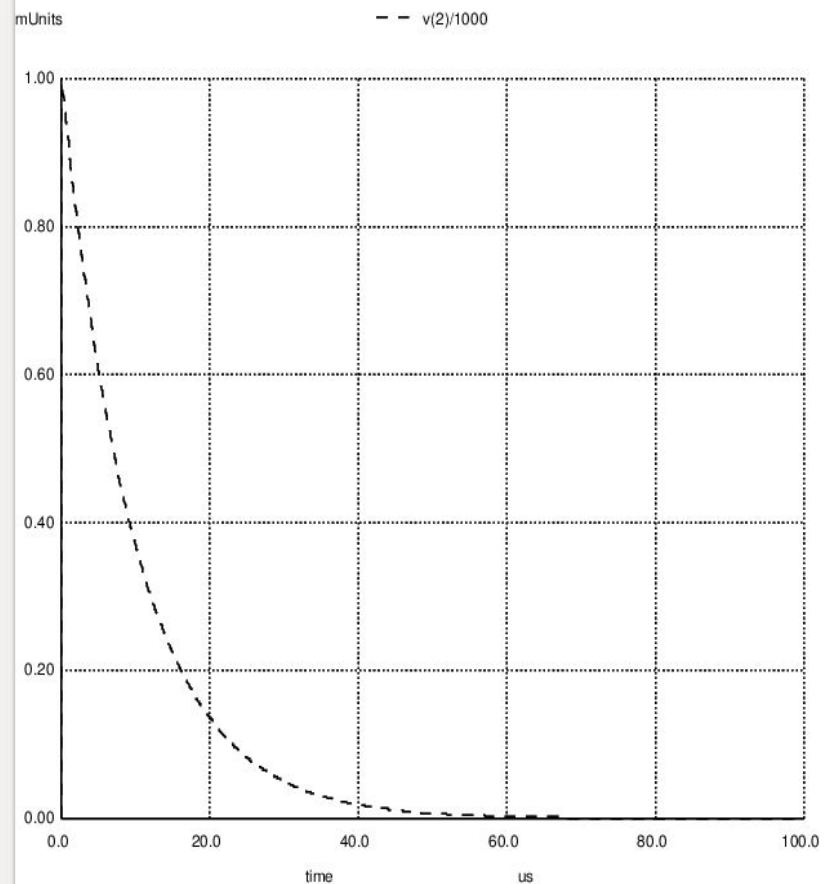
# Homework-0: EE204

Shown below are the ngspice codes with corresponding current plots for each question.

Q1.

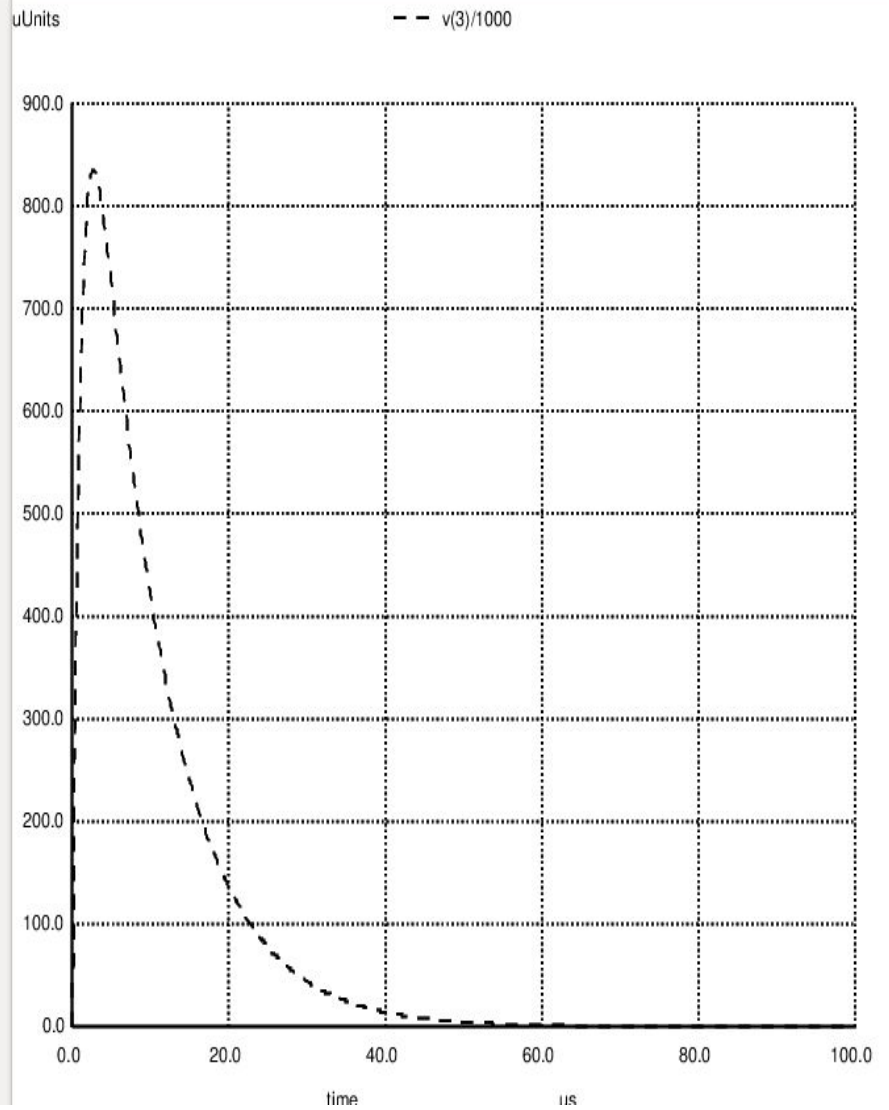
(a)

```
q1.1
v 1 0 dc pulse(0 1 0 0 0 100u)
r 2 0 1k
c 1 2 10n
.tran 0.1us 100us
.control
run
plot v(2)/1000
hardcopy q1_1 v(2)/1000
.endc
.end
```



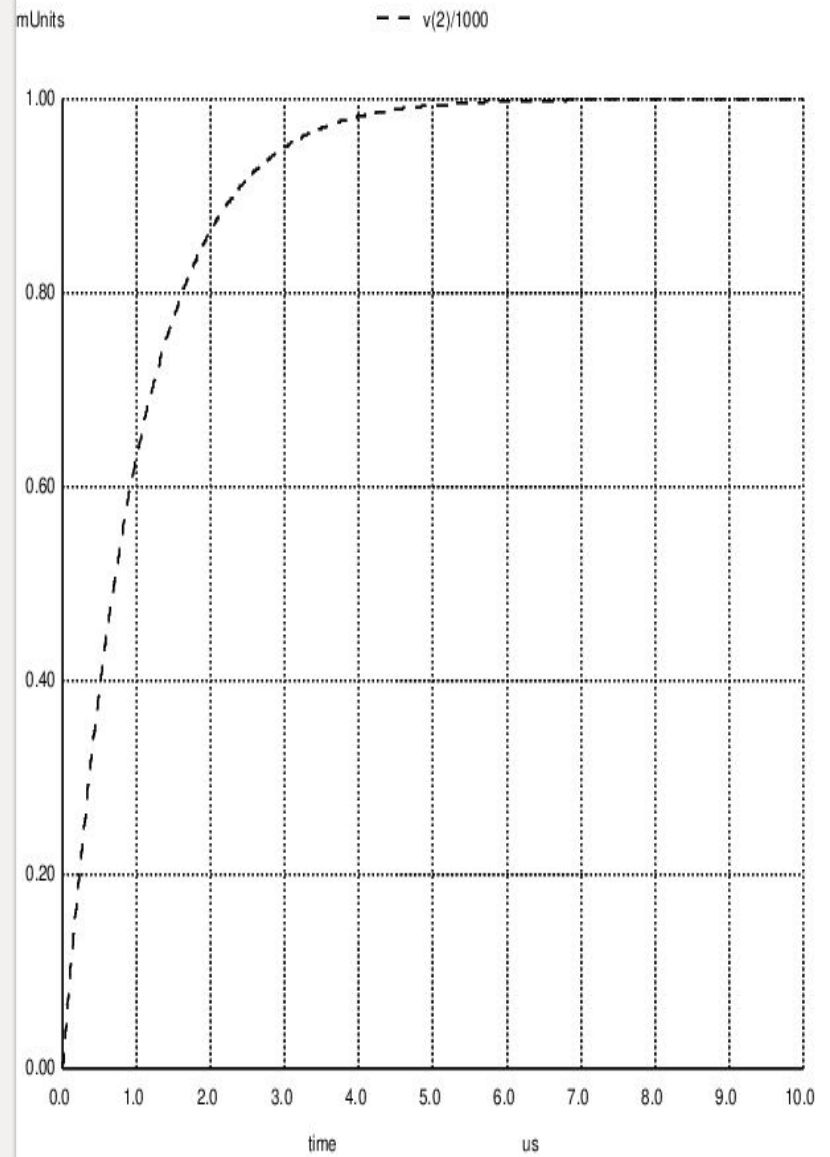
(b)

```
q1.1
v 1 0 dc pulse(0 1 0 0 0 100u)
r 3 0 1k
l 2 3 1m
c 1 2 10n
.tran 0.1us 100us
.control
run
plot v(3)/1000
hardcopy q1_2 v(3)/1000
.endc
.end
```



(c)

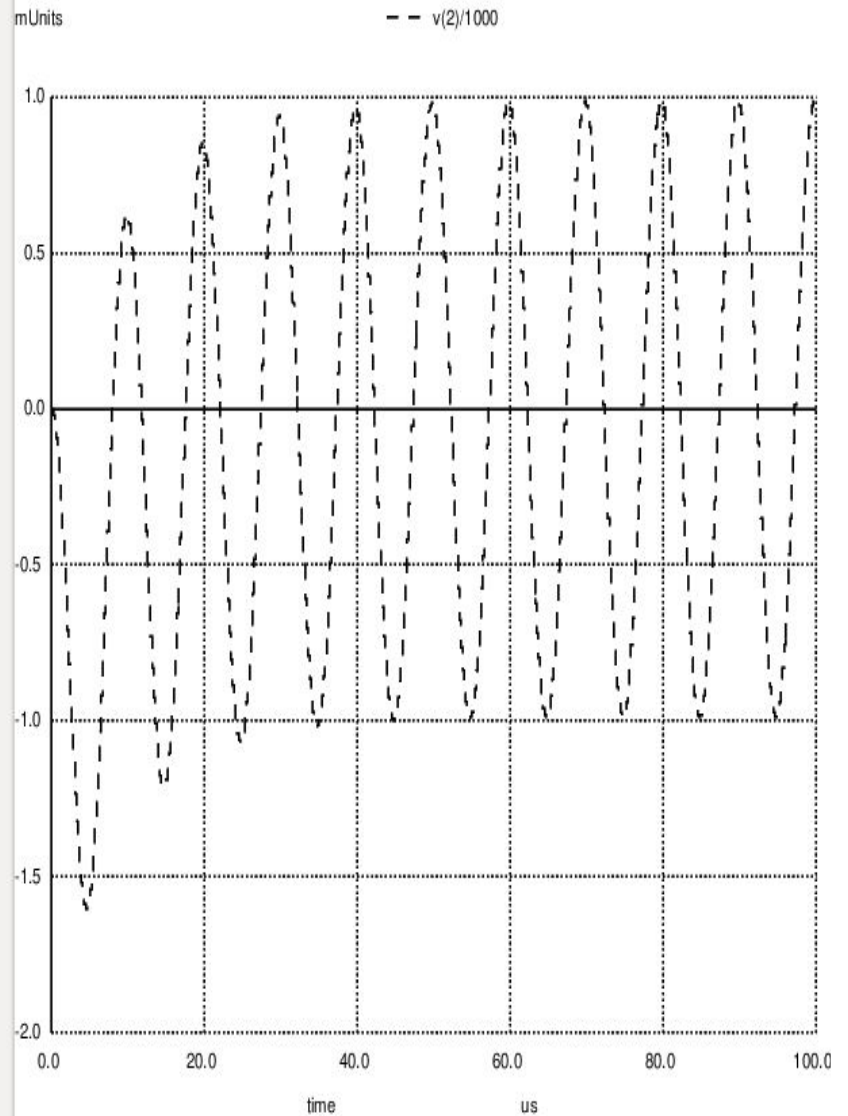
```
q1.1
v 1 0 dc pulse(0 1 0 0 0 10u)
r 2 0 1k
l 1 2 1m
.tran 0.01us 10us
.control
run
plot v(2)/1000
hardcopy q1_3 v(2)/1000
.endc
.end
```



Q2.

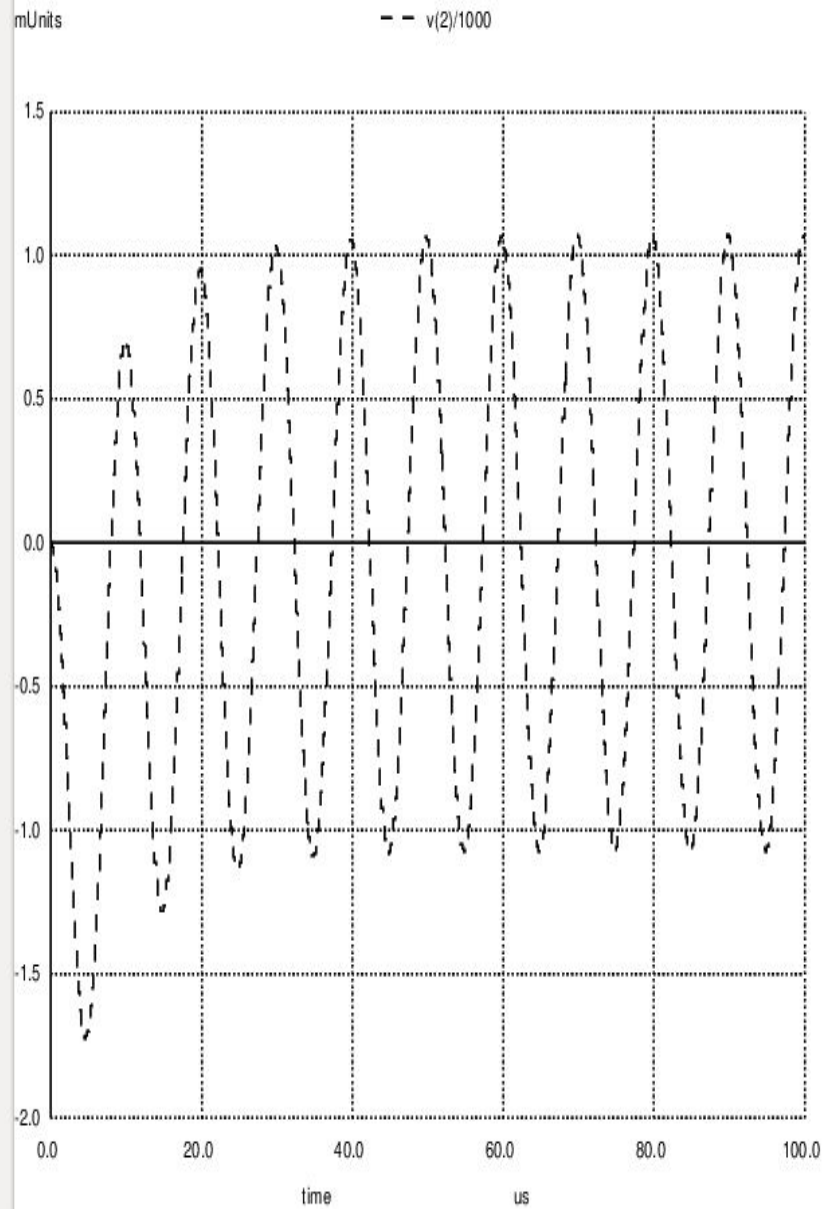
(a)

```
q1.1
v 1 0 sin(0 1 100k -2.5u 1e-10)
r 2 0 1k
c 1 2 10n
.tran 0.001us 100us
.control
run
plot v(1)
plot v(2)/1000
hardcopy q2_1 v(2)/1000
.endc
.end
```



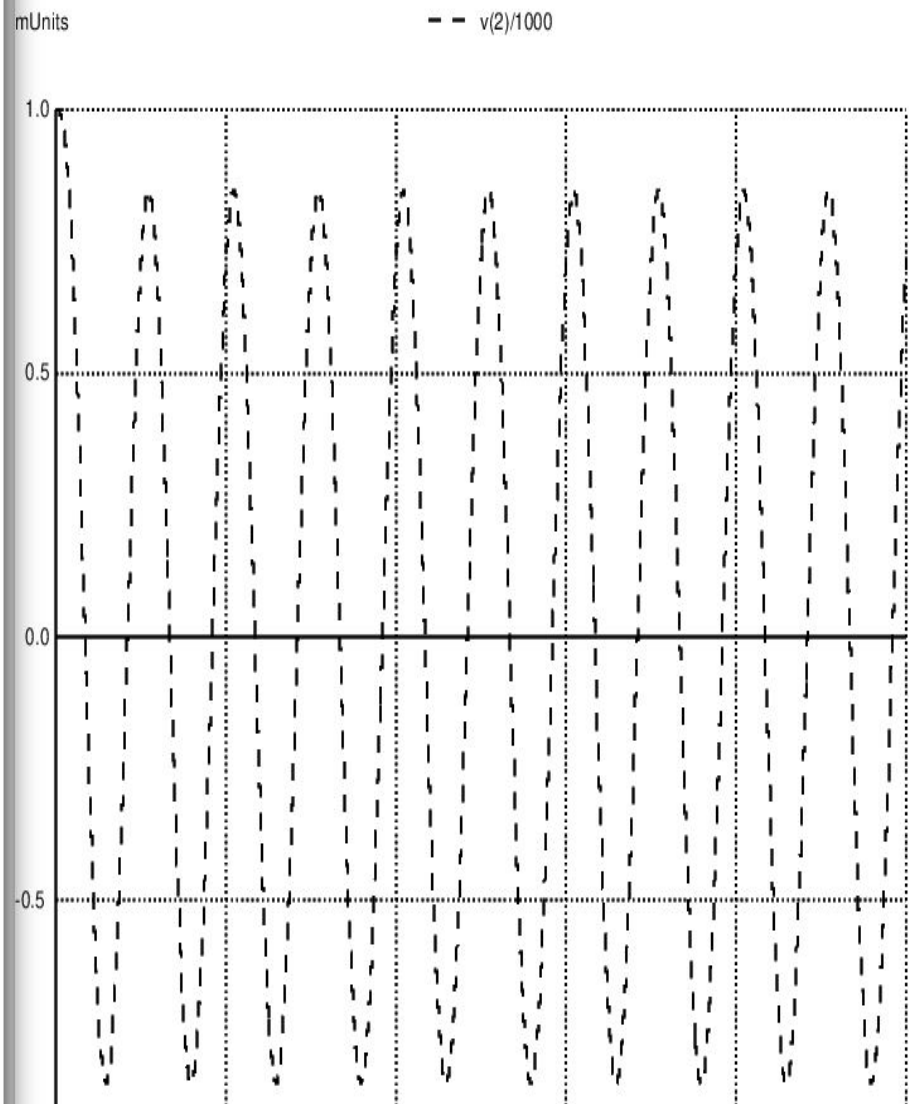
(b)

```
q1.1
v 1 0 sin(0 1 100k -2.5us 0)
r 3 0 1k
l 2 3 1m
c 1 2 10n
.tran 0.001us 100us
.control
run
plot v(2)/1000
hardcopy q2_2 v(2)/1000
.endc
.end
```



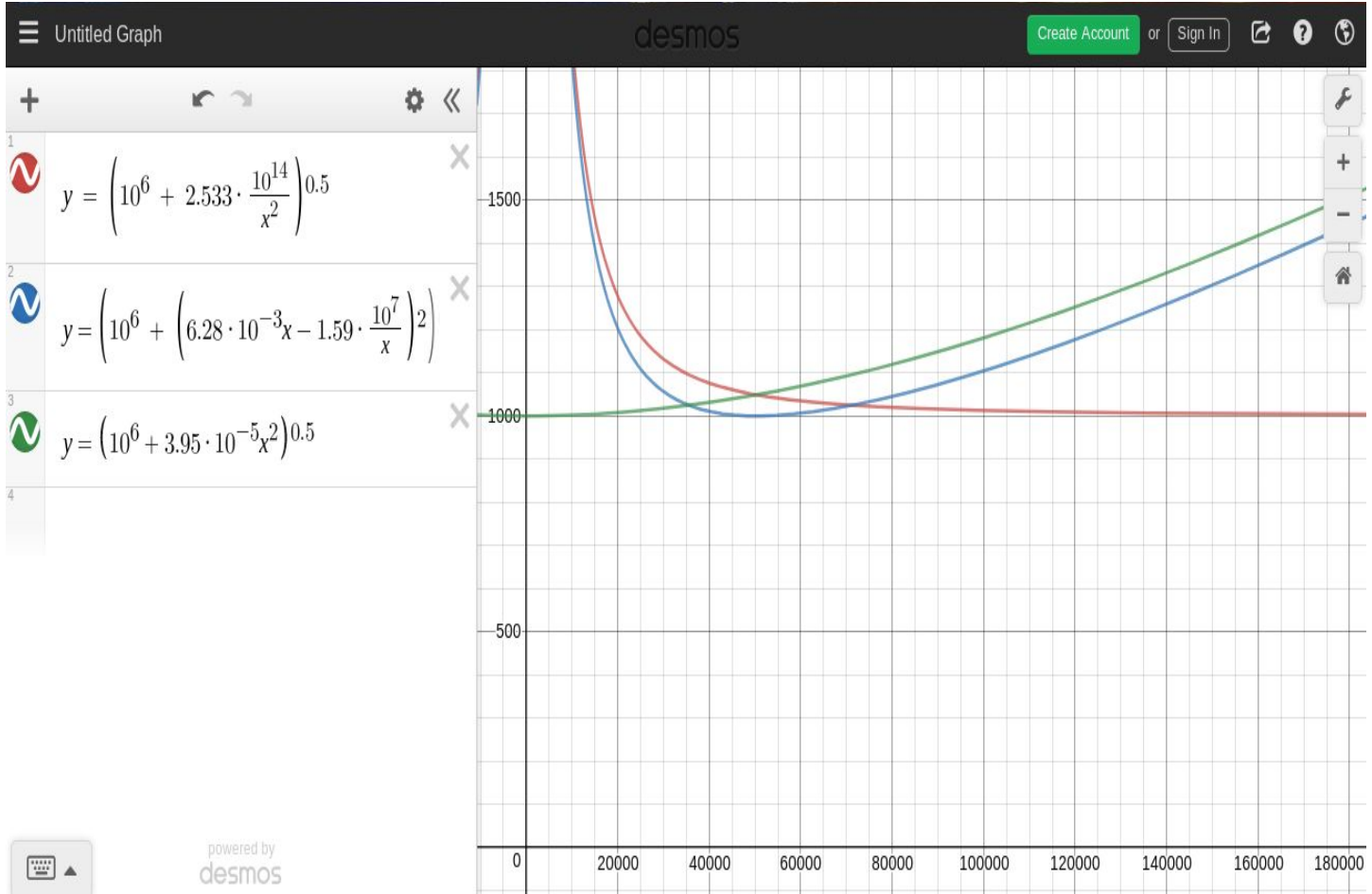
(c)

```
q1.1
v 1 0 sin(0 1 100k -2.5us 0)
r 2 0 1k
l 1 2 1m
.tran 0.001us 100us
.control
run
plot v(1)
plot v(2)/1000
hardcopy q2_3 v(2)/1000
.endc
.end
```

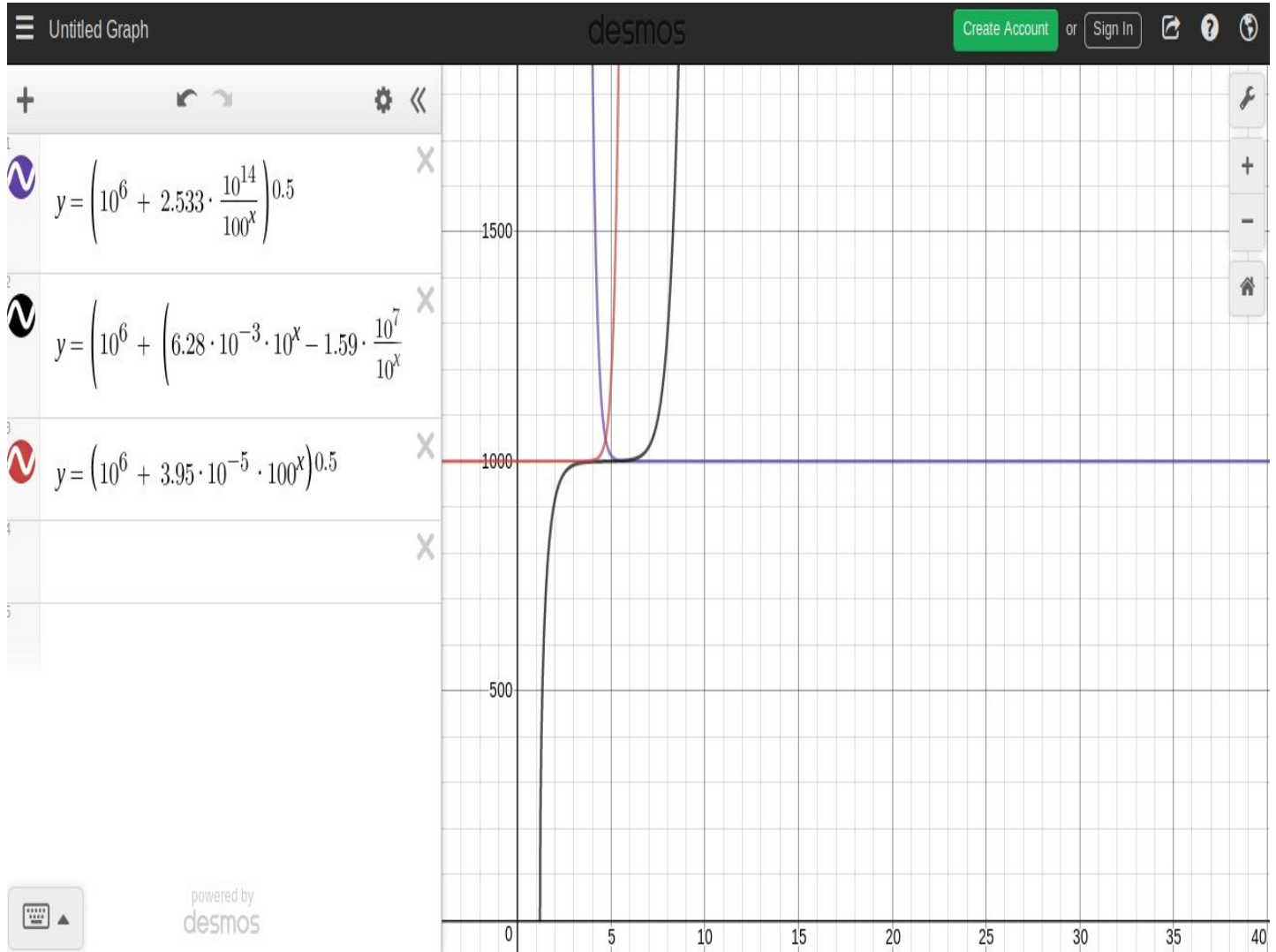


Q3. Given below are the graphs plotted in online software.

Magnitude vs frequency:

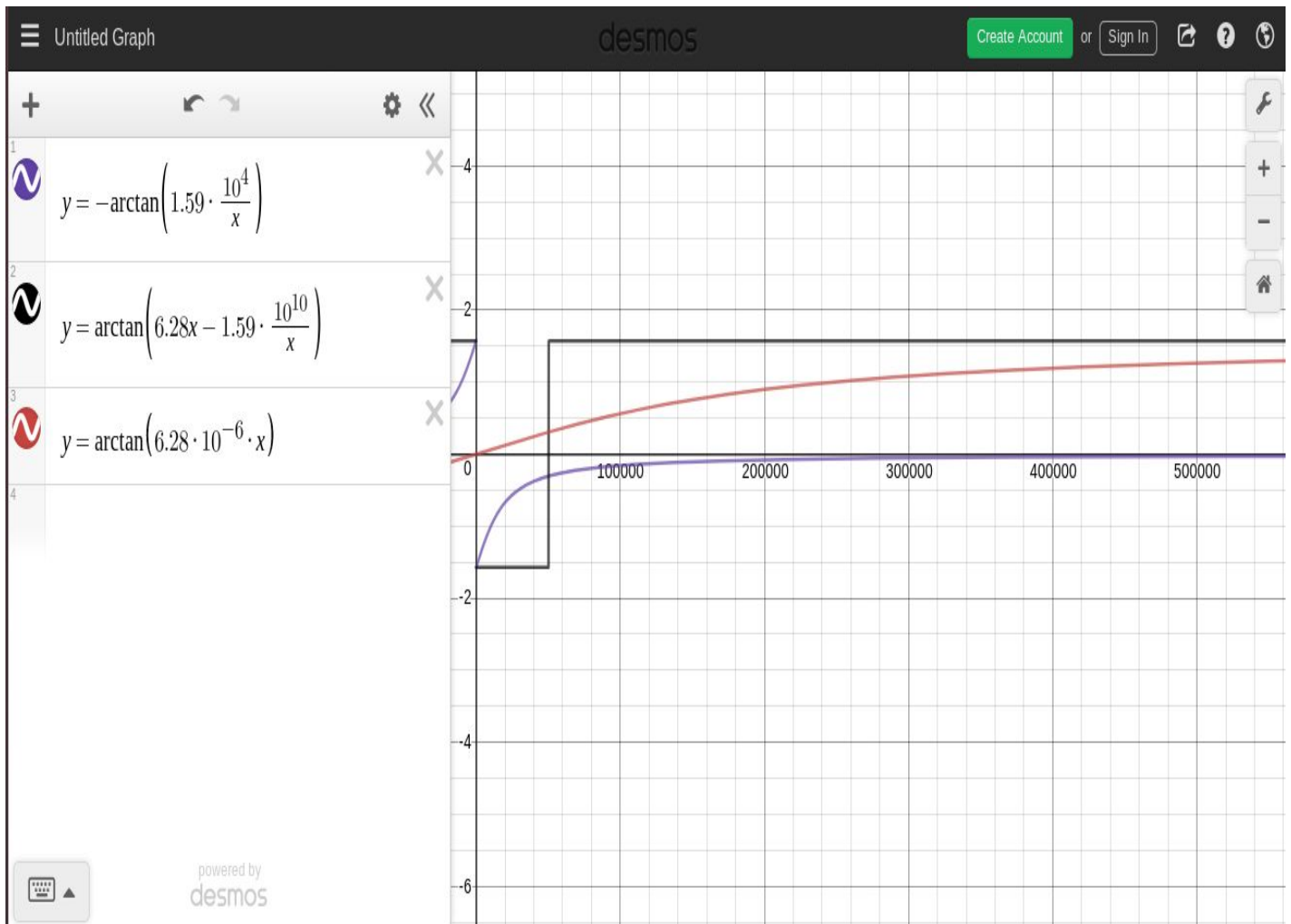


## Magnitude vs frequency in log scale

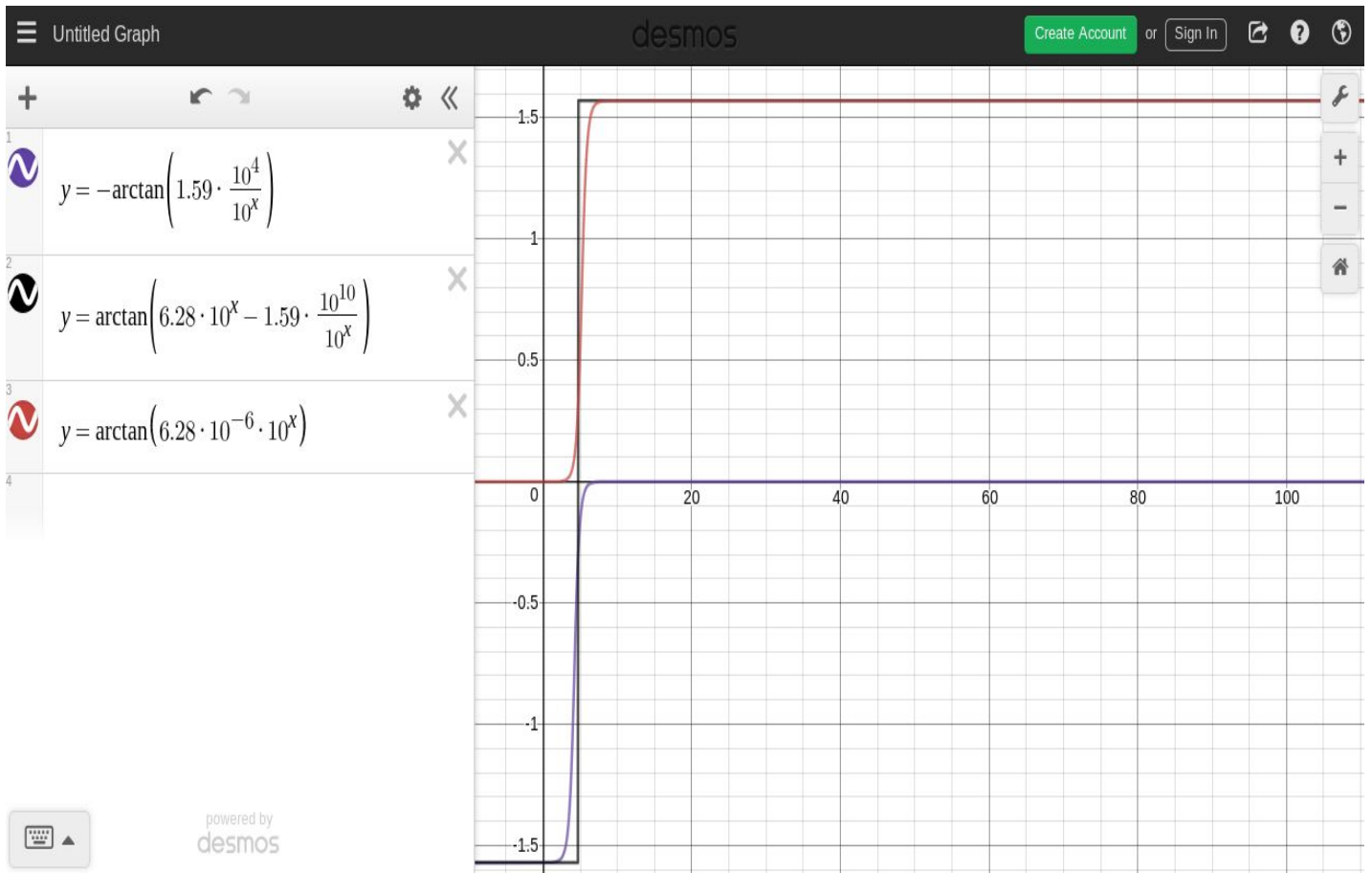


## Phase vs frequency



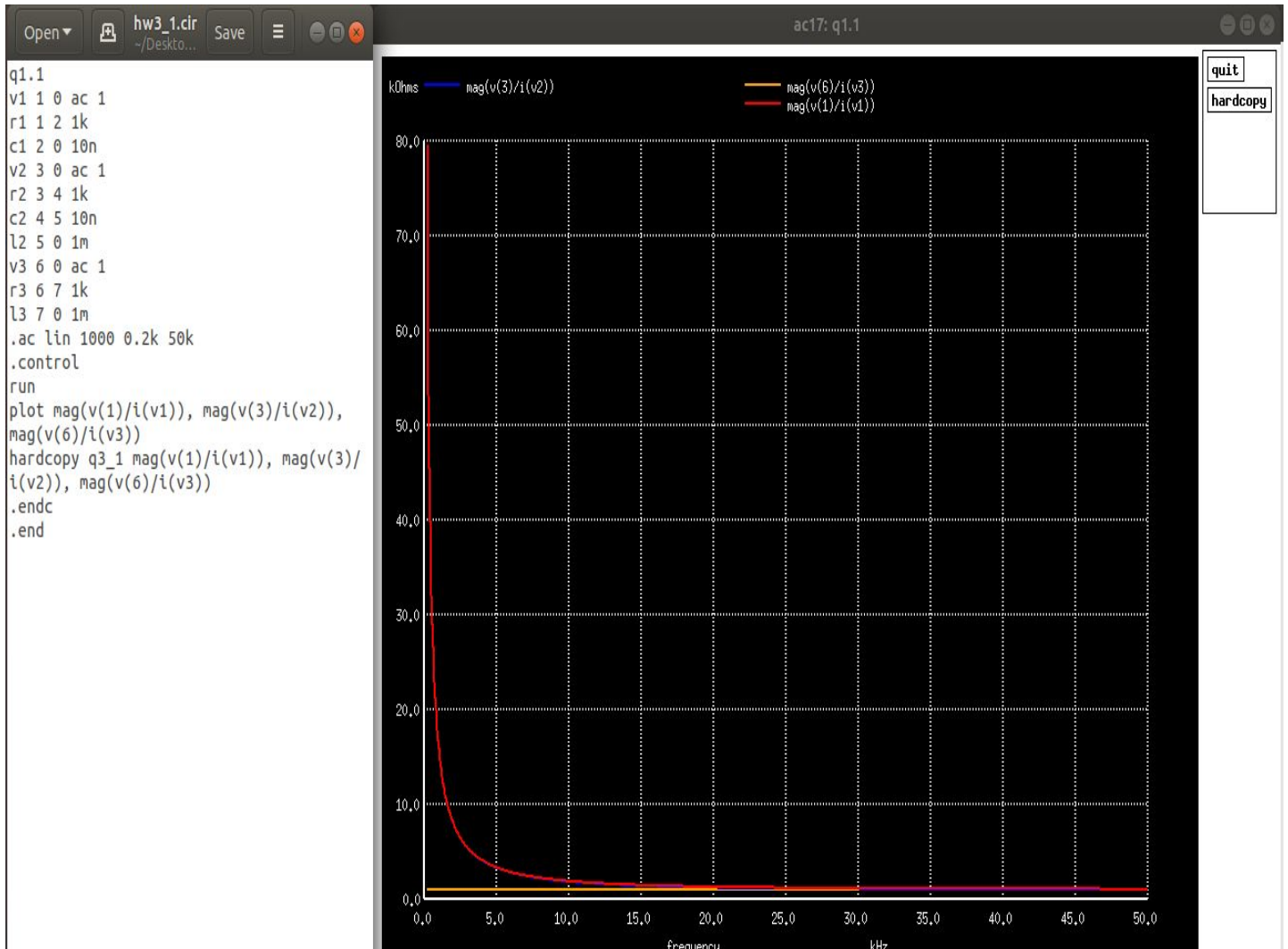


Phase vs frequency in log scale

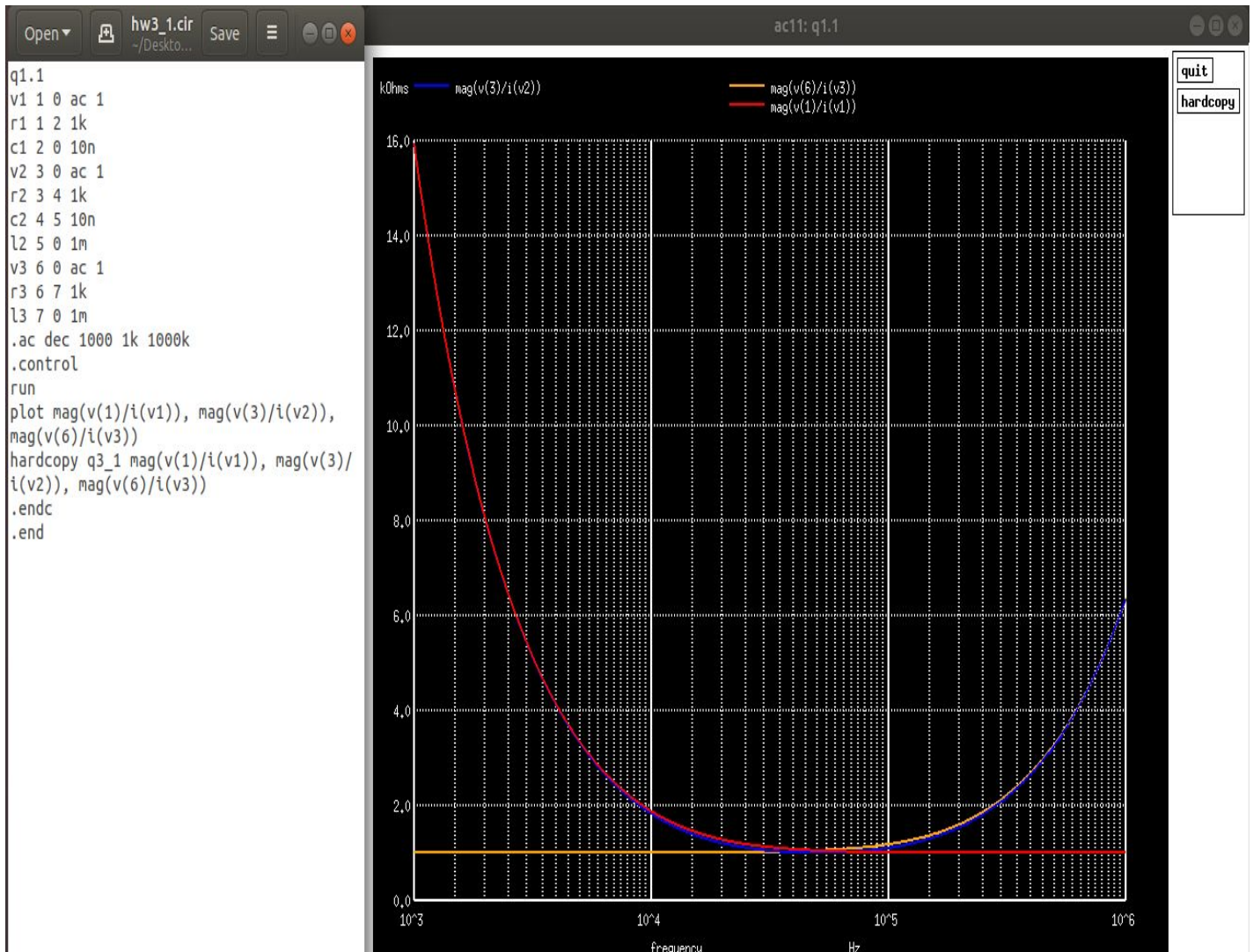


Given below are graphs plotted in ngspice. The pdf of the plot is not taken and actual plots are submitted below to clearly highlight the differences aided by contrasting colours.

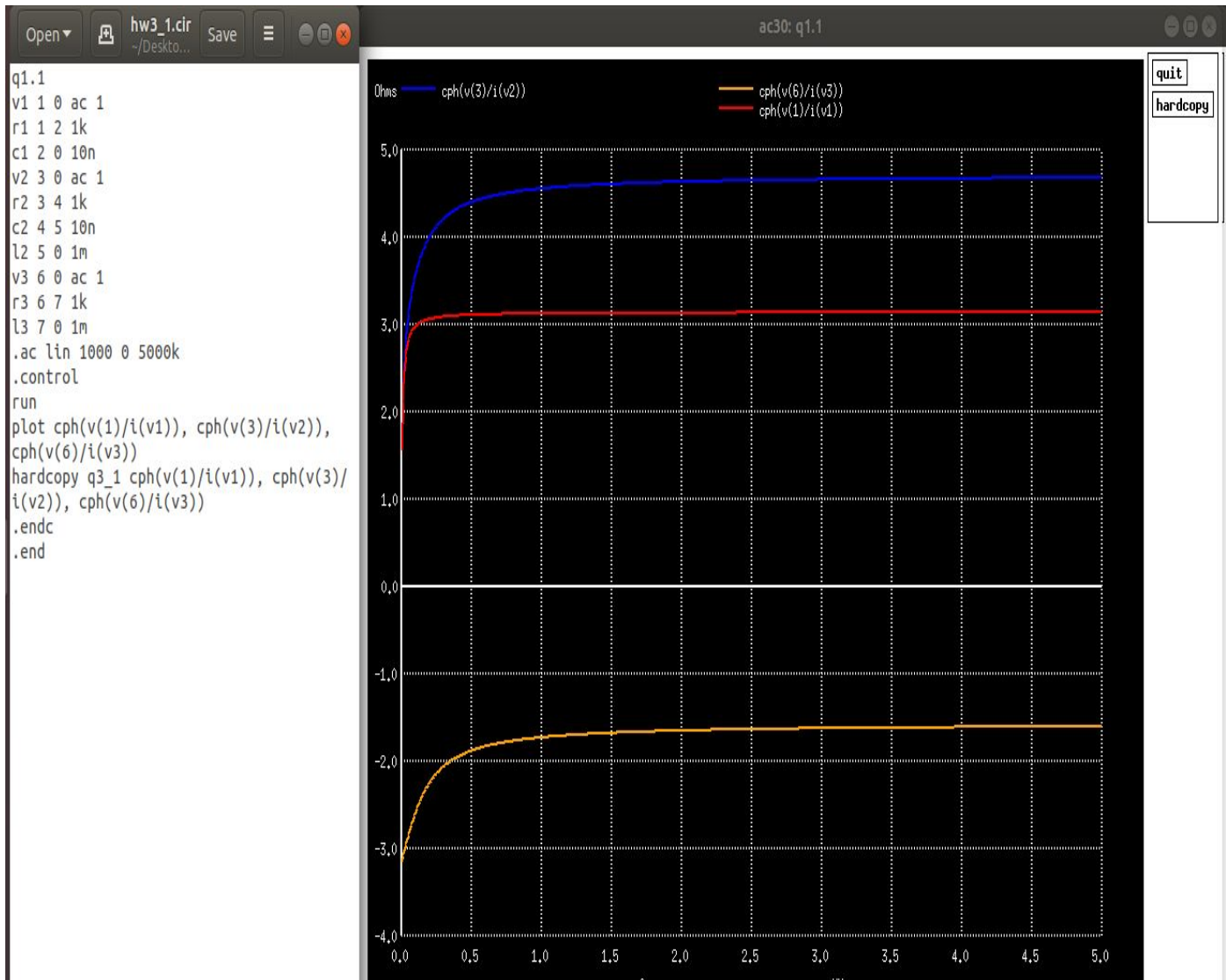
# Magnitude vs frequency



# Magnitude vs frequency in log scale



# Phase vs frequency



# Phase vs frequency in log scale

