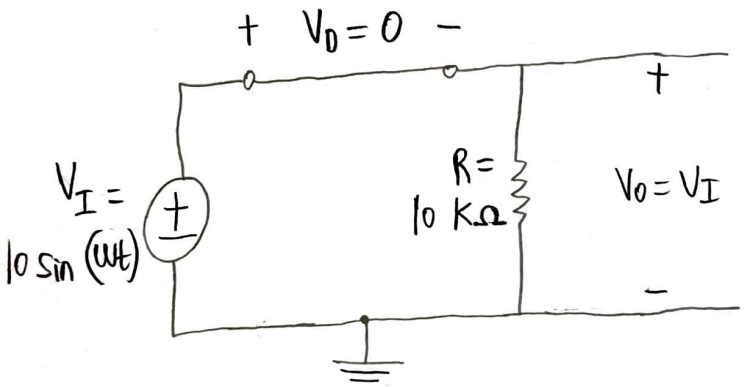
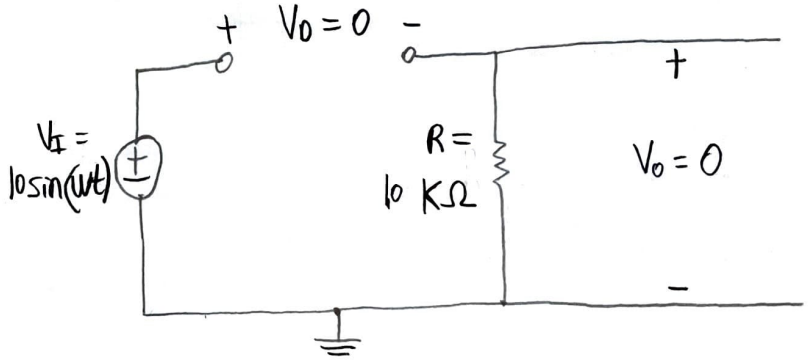
Prelab 5:

1. a. When $V_I \geq 0$:



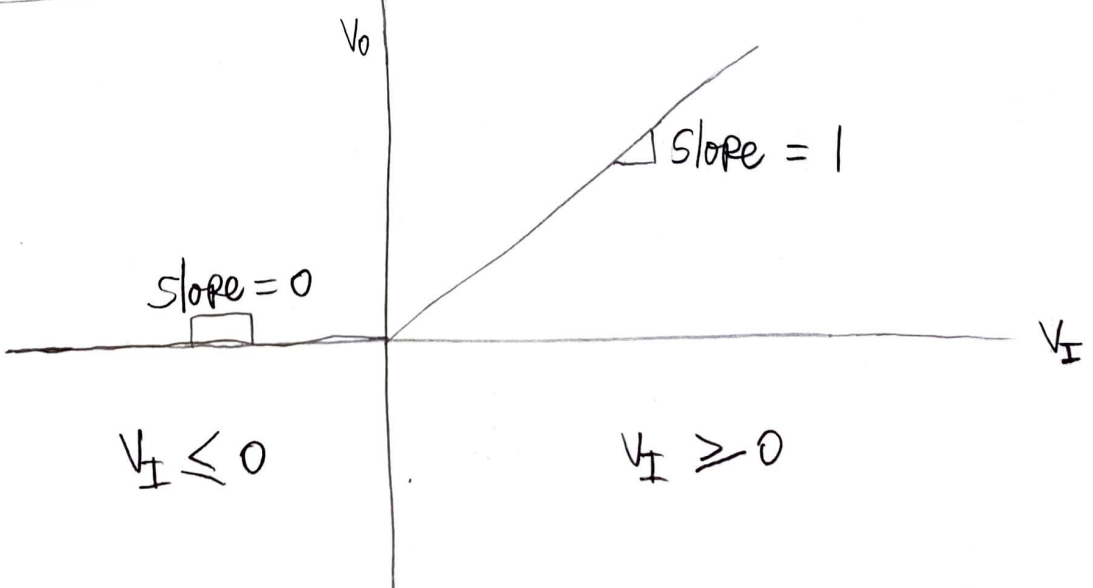
$V_0 = V_I$

When $V_I \leq 0$:



$V_0 = 0$

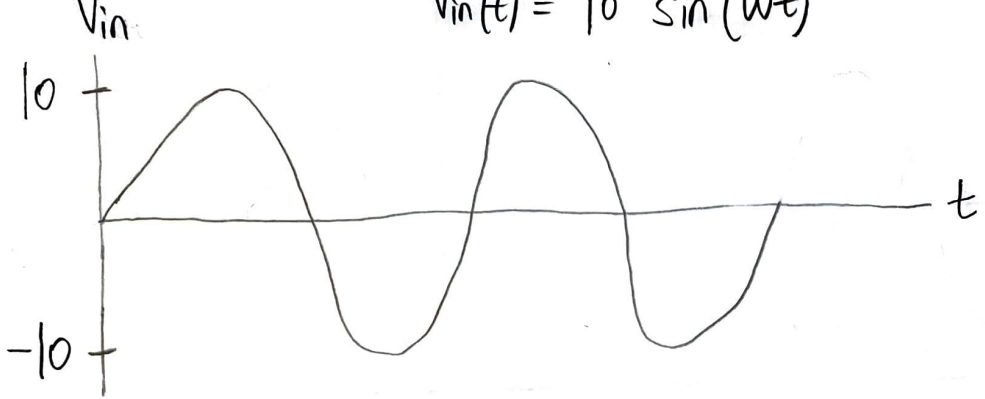
b. V_0 vs. V_I:



$V_I \leq 0$

$V_I \geq 0$

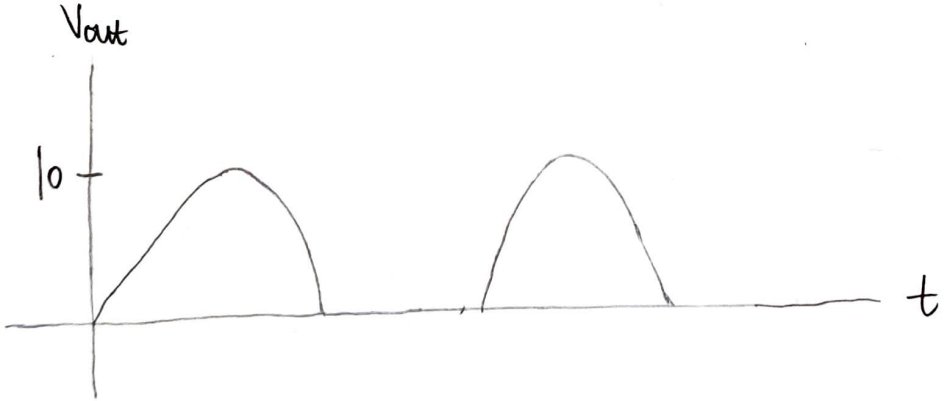
(C.)



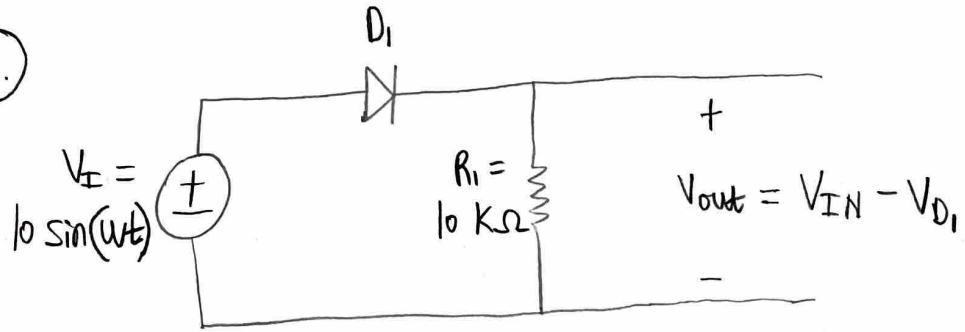
$V_{in}(t) = 10 \sin(\omega t)$

If $V_{in} \leq 0$:
then $V_{out} = 0$ $\longrightarrow$ Effect on $V_{out}(t)$:
V_{out}: Clipped at 0 V,
instead of going all the way down to -10 V

$V_{out} = 10 \sin(\omega t)\ ?\ V_{in} \geq 0\ :\ 0$ (Ternary operator)



(d.)



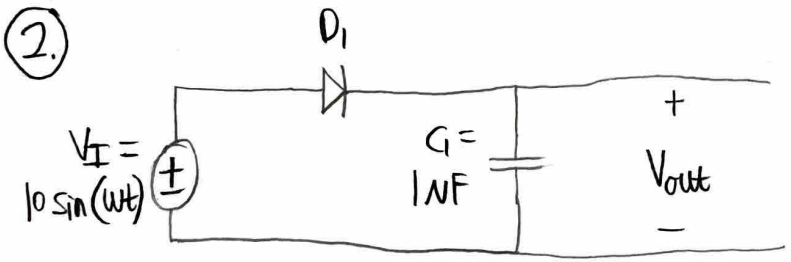
Peak Diode current

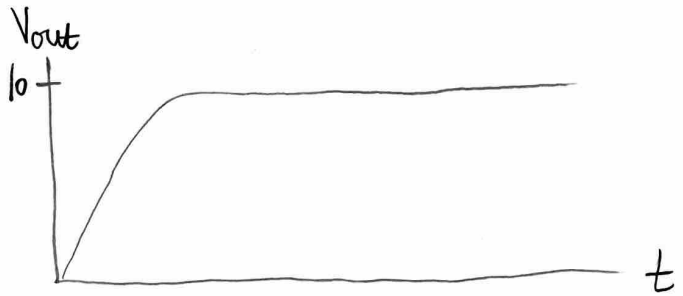
$= \frac{V_{IN} - V_{D1}}{R_1}$ → "peak": Must use Vin at peak

$= \frac{10 - V_{D1}}{10000}$ (*)

(*): V_{D1} appears to be unknown

(2.)





(3.)