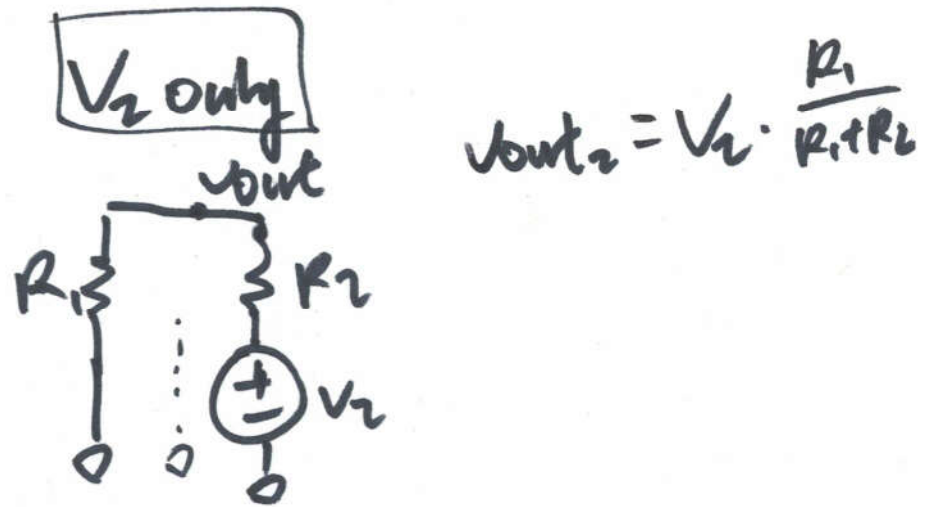
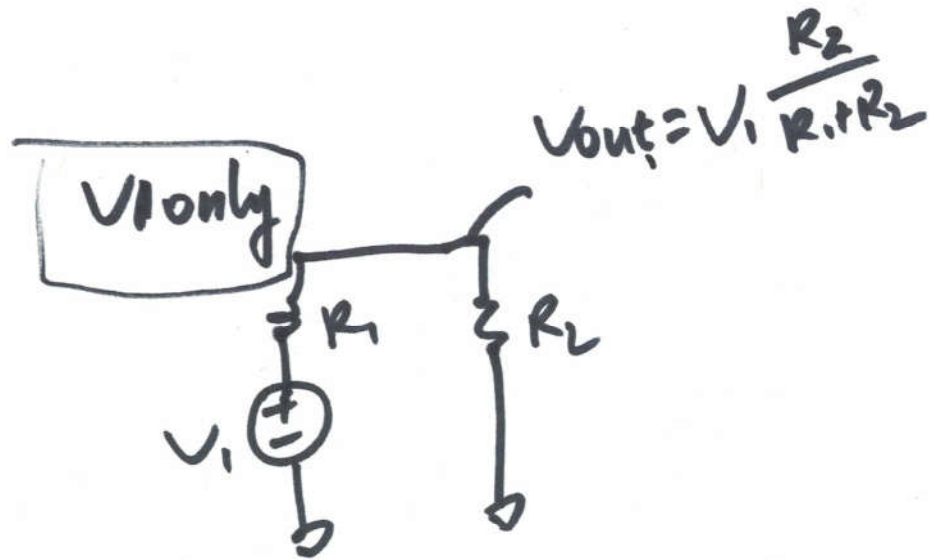
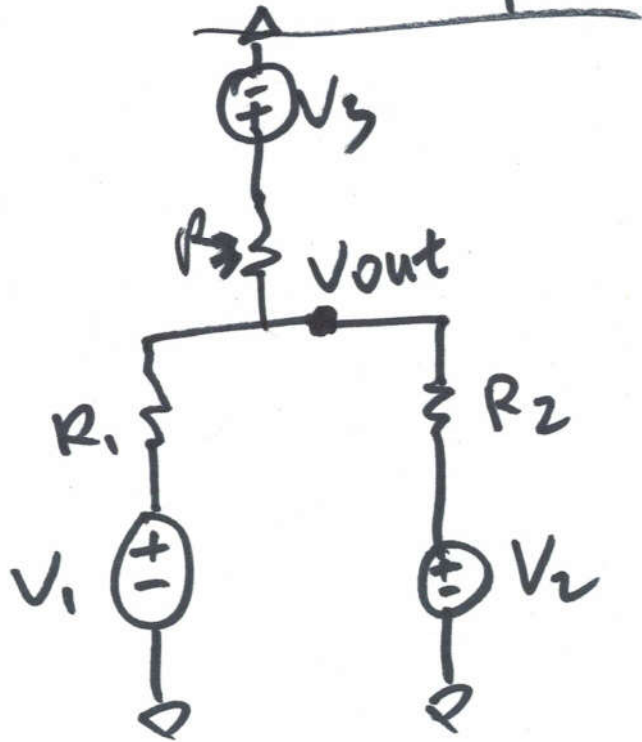
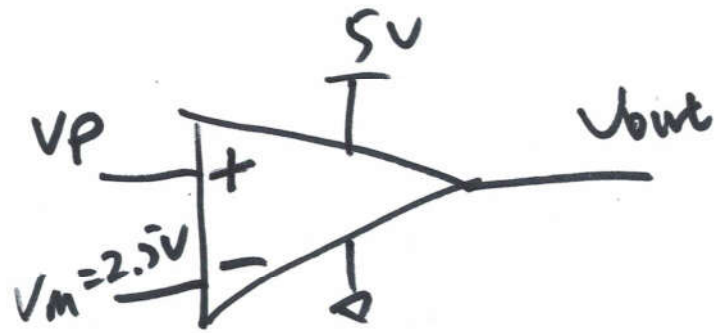


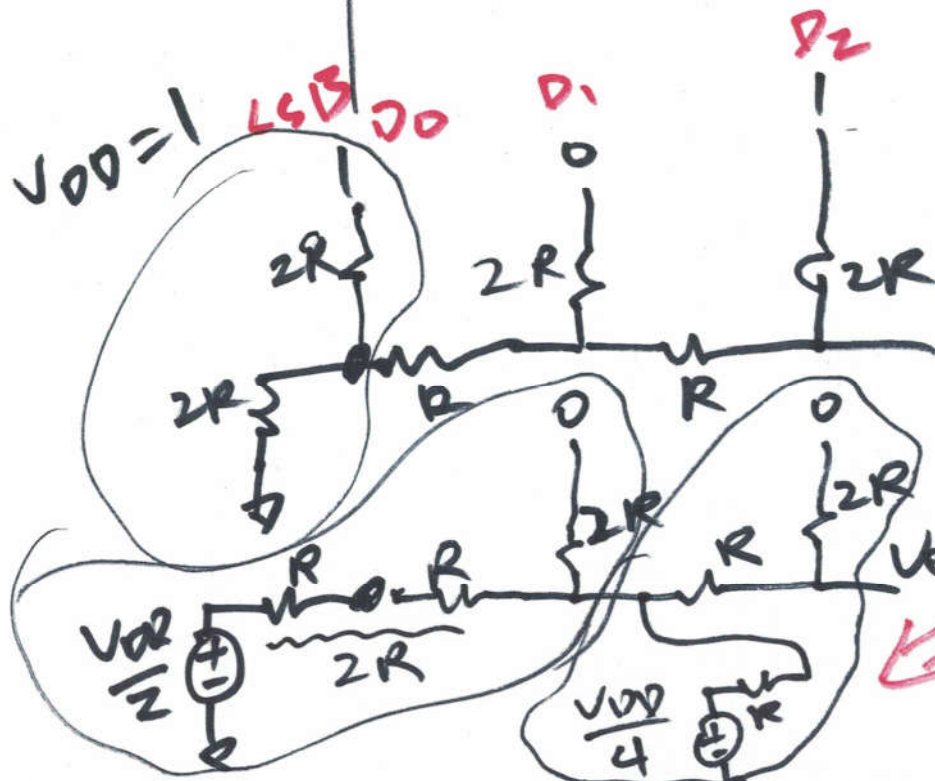
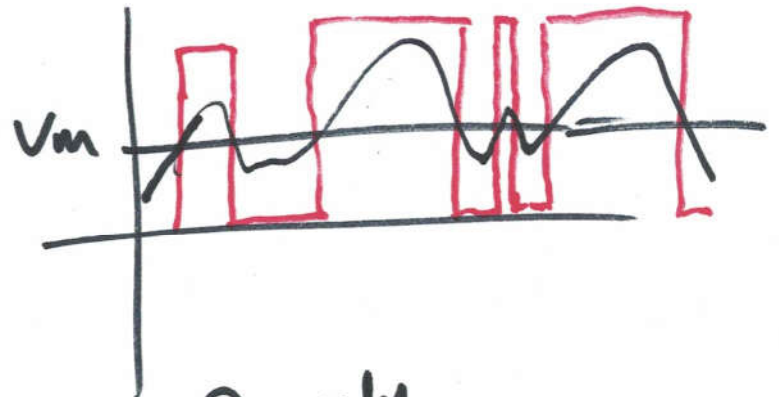
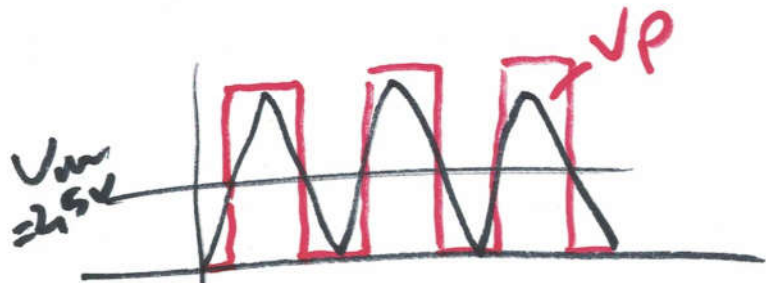
# QUIZ 1



1

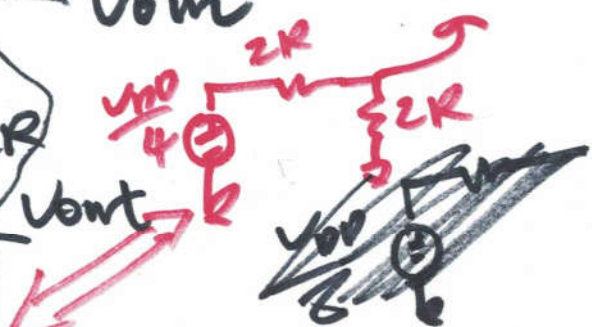


$$(V_p - V_m) \frac{A_{ol}}{\infty} = V_{out}$$

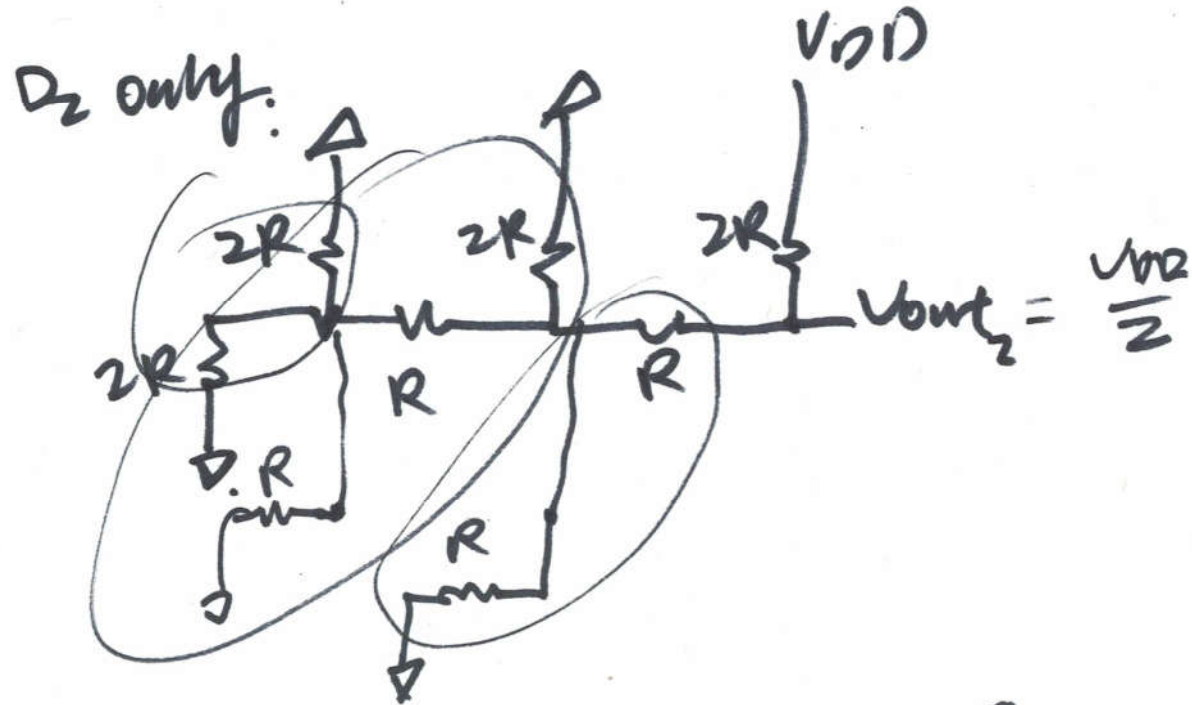


$D_0$  only:

$$V_{out,1} = \frac{V_{DD}}{8}$$



②



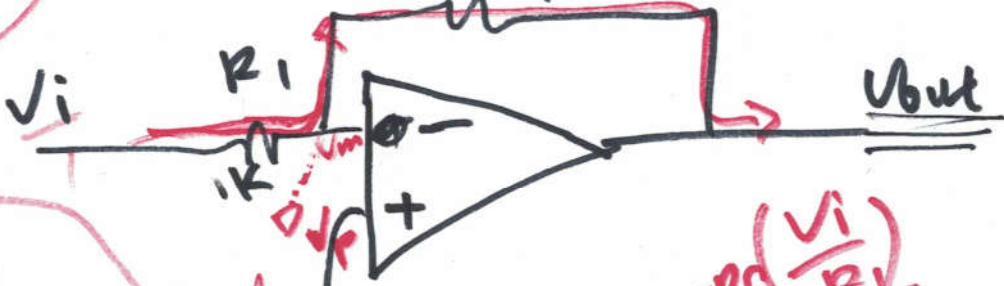
$$V_{out} = V_{out_1} + V_{out_2} = \frac{V_{DD}}{8} + \frac{V_{DD}}{2} = \frac{5}{8} V_{DD}$$

(3)

$$\frac{V_i - 0}{R_i}$$

$$(V_p - V_m) A_{OL} \approx V_{out}$$

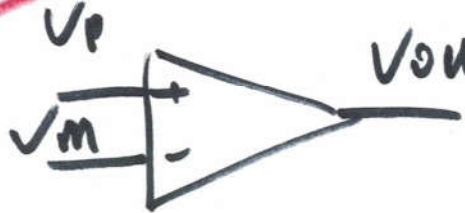
TIA  
Transimpedance Amplifier



Inverting Configuration

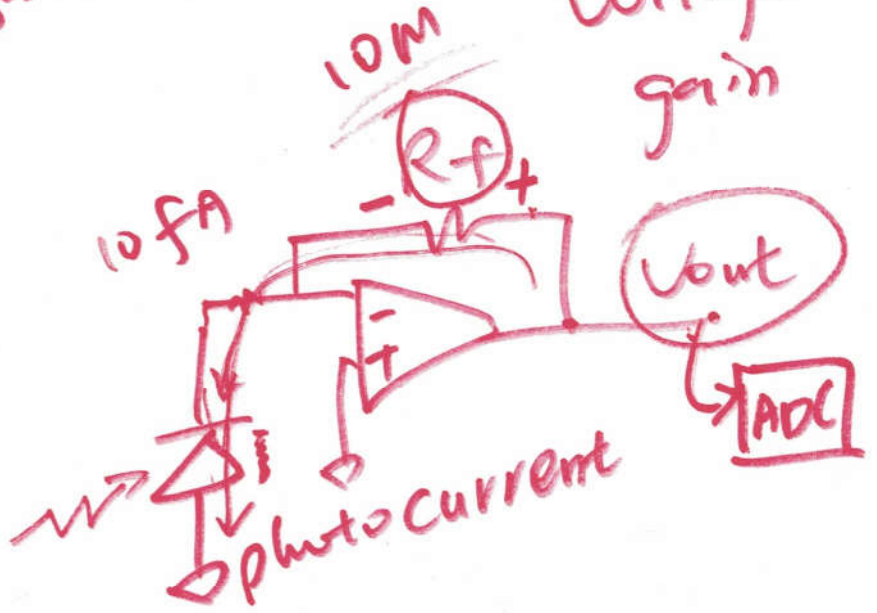
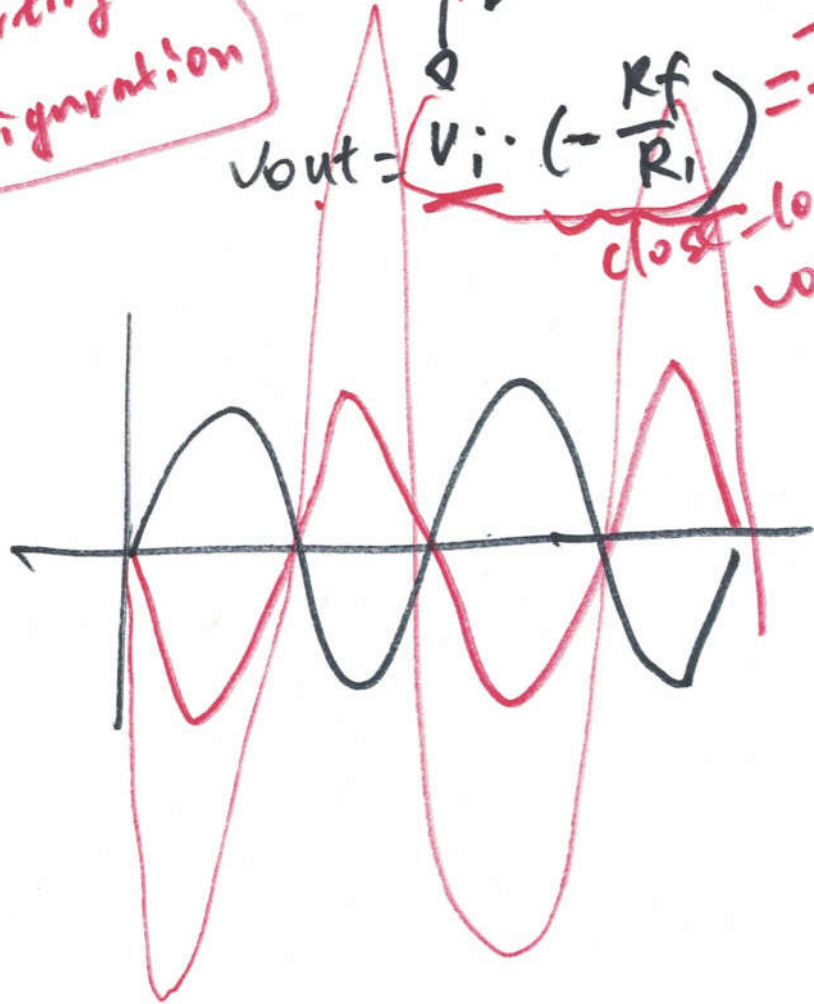
$$V_{out} = V_i \cdot \left(-\frac{R_f}{R_i}\right) = -R_f \left(\frac{V_i}{R_i}\right)$$

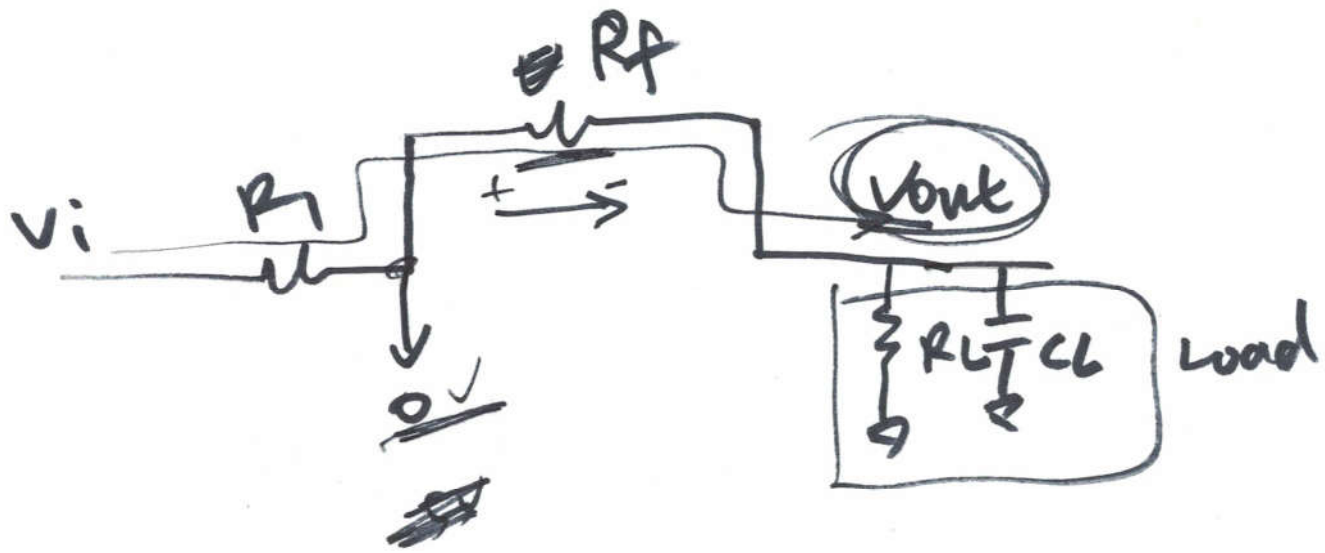
close-loop voltage gain



$$V_{out} = (V_p - V_m) A_{OL}$$

open-loop voltage gain

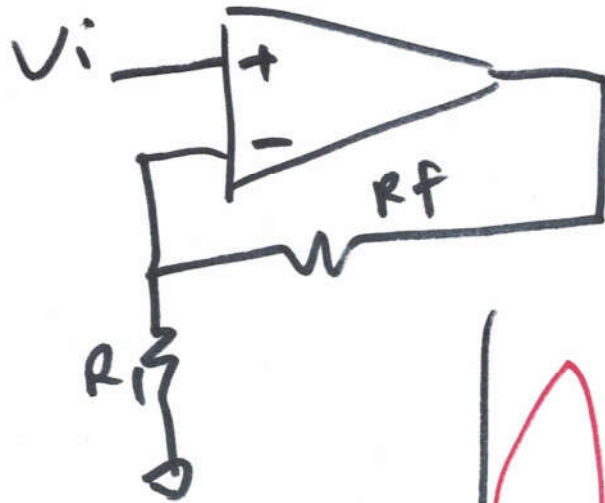




5



non-inverting configuration



$$V_{out} = V_i \left( 1 + \frac{R_f}{R_1} \right)$$

