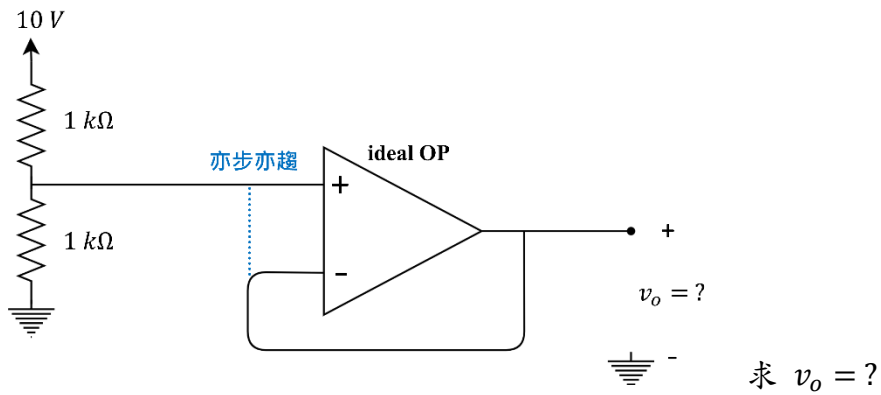


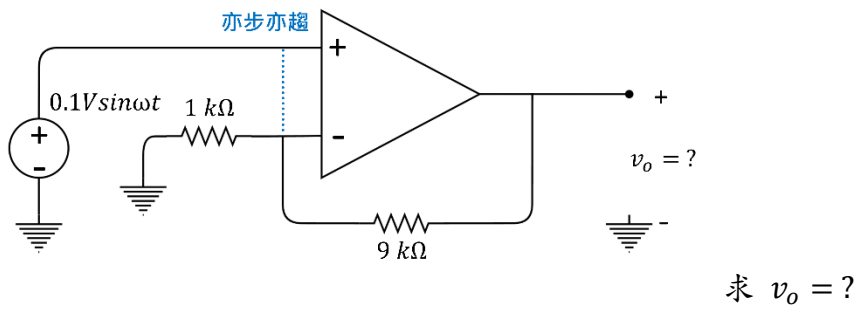
國立陽明交通大學 數位教學中心 開放式課程
 (高中生專區) 電子學 小考試題 第二章 (含解答)

2.1



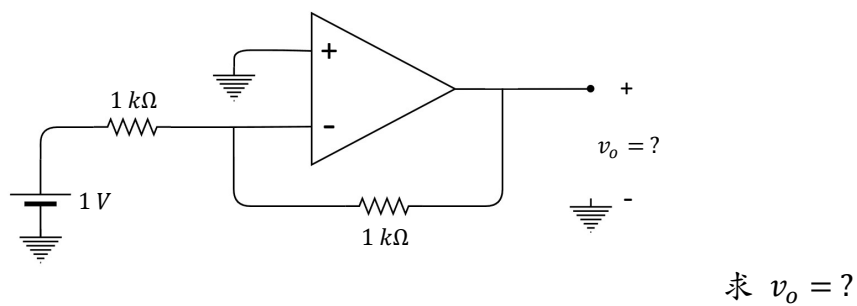
(sol) $v_o = 10 \times \frac{1}{1+1} = 5 \text{ V}$

2.2



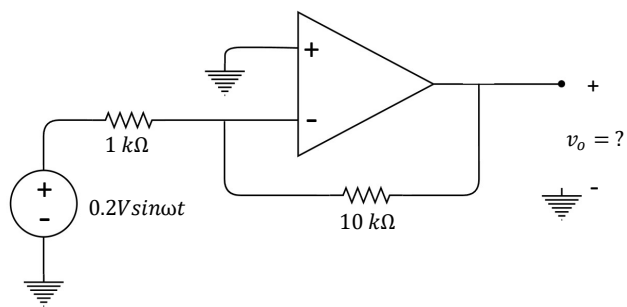
(sol) $v_o = 0.1 \text{ Vsin}\omega t \times (1 + \frac{9}{1}) \cong 1 \text{ Vsin}\omega t$ (放大器)

2.3



(sol) $v_o = 1 \times -\frac{1}{1} = -1 \text{ V}$ (反向器)

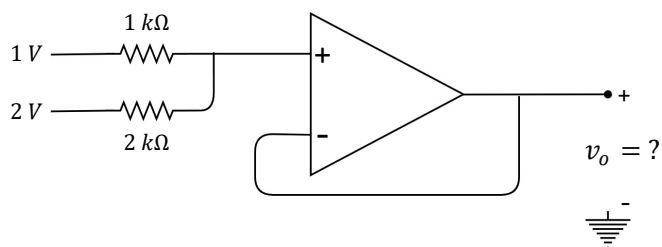
2.4



求 $v_o = ?$

(sol) $v_o = 0.2 V \sin \omega t \times \left(-\frac{10}{1}\right) \cong -2 V \sin \omega t$

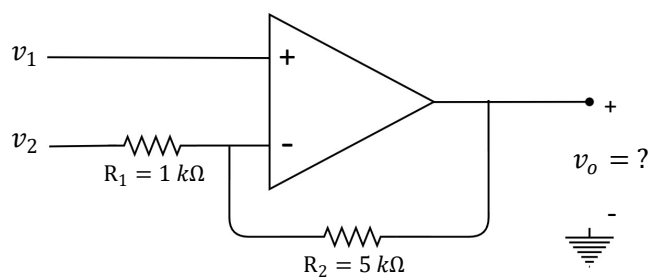
2.5



求 $v_o = ?$

(sol) $v_o = 1\text{ V} \times \left(\frac{2}{1+2}\right) + 2\text{ V} \left(\frac{1}{2+1}\right) \cong \frac{4}{3}\text{ V}$

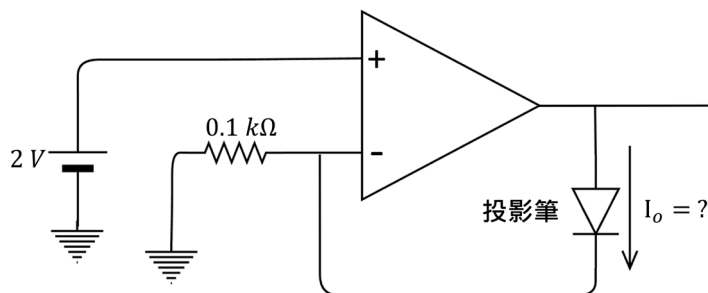
2.6



求 $v_o = ?$

(sol) $v_o = \left(1 + \frac{R_2}{R_1}\right) v_1 - \frac{R_2}{R_1} v_2 = 6v_1 - 5v_2$

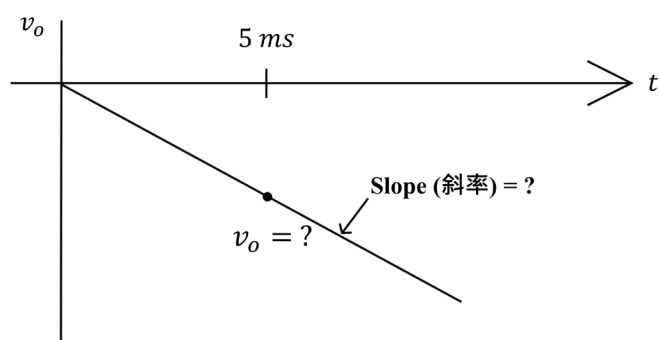
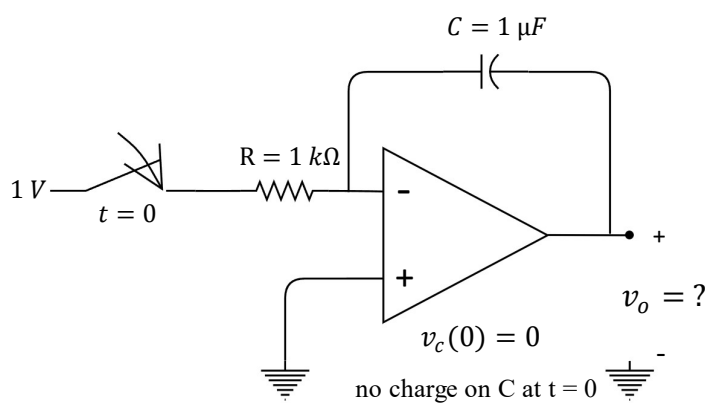
2.7



求 $I_o = ?$

(sol) $I_o = \frac{2}{0.1} = 20 \text{ mA}$

2.8



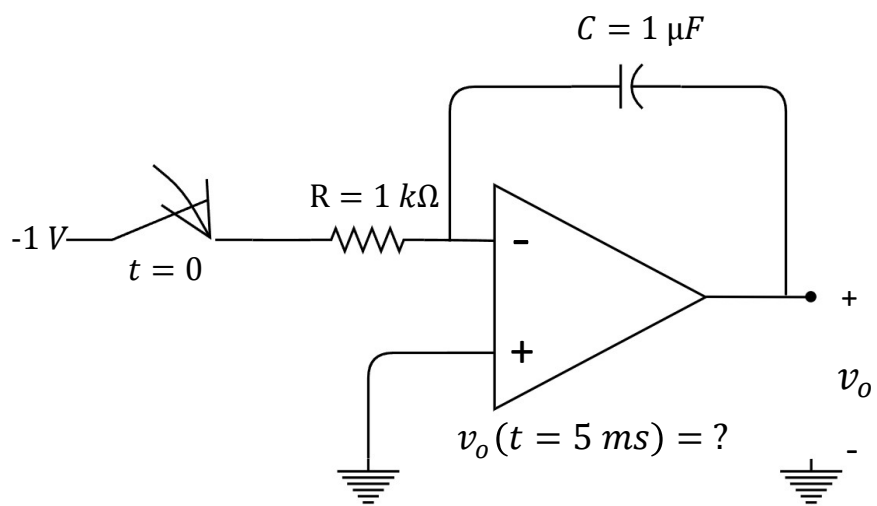
求 (a) 斜率 $S = ?$ (b) $v_o(\text{at } t = 5 \text{ ms}) = ?$

(sol) (a) $\tau = RC = 10^3 \times 10^{-6} = 1 \text{ ms}$

$v_o = -\frac{1}{RC} \int_0^t 1 dt = -\frac{1V}{1 \text{ ms}} t \Rightarrow \text{斜率} = -1 \text{ V/ms}$

(b) $v_o(5 \text{ ms}) = -\frac{1V}{1 \text{ ms}} \times 5 \text{ ms} = -5 \text{ V}$

2.9



求 $v_o(t = 5\text{ ms}) = ?$

(sol) $\tau = RC = 10^3 \times 10^{-6} = 1\text{ ms}$

$$v_o = -\frac{1}{RC} \int_0^t -1 dt = \frac{1\text{ V}}{1\text{ ms}} \times 5\text{ ms} = 5\text{ V}$$