Homework for Chapter 10

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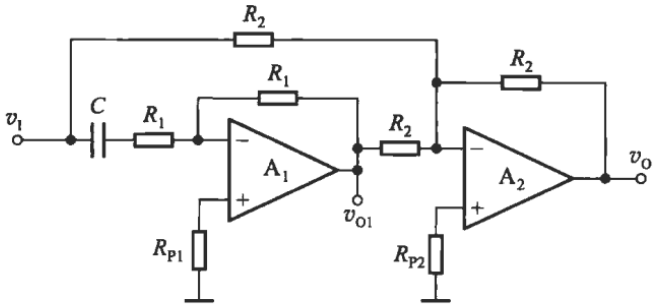
10.3.3　电路如图题 10.3.3 所示，设 A_1、A_2 为理想运放。(1)求 $A_1(s)=\frac{V_{o1}(s)}{V_i(s)}$ 及 $A(s)=\frac{V_o(s)}{V_i(s)}$；(2)根据导出的 $A_1(s)$ 和 $A(s)$ 表达式，判断它们分别属于什么类型的滤波电路。



图题 10.3.3

1 Problem 1

$$A_1(s)=-\frac{R_1}{R_1+\frac{1}{j\omega C}}=\frac{v_{o1}(s)}{v_1(s)}$$

$$v_0(s)=-\frac{R_2}{R_2}v_{o1}-\frac{R_2}{R_2}v_1=-v_{o1}-v_1$$

$$A(s)=\frac{v_o}{v_1}=-\frac{v_{o1}+v_1}{v_1}=\frac{R_1}{R_1+\frac{1}{j\omega C}}-1=-\frac{\frac{1}{j\omega C}}{R_1+\frac{1}{j\omega C}}=-\frac{1}{1+j\omega CR_1}$$

2 Problem 2

A_1 is low-pass filter while A is low-pass filter as well.