

14.48 Find the transfer function for the network in Fig. P14.48. **PSV**

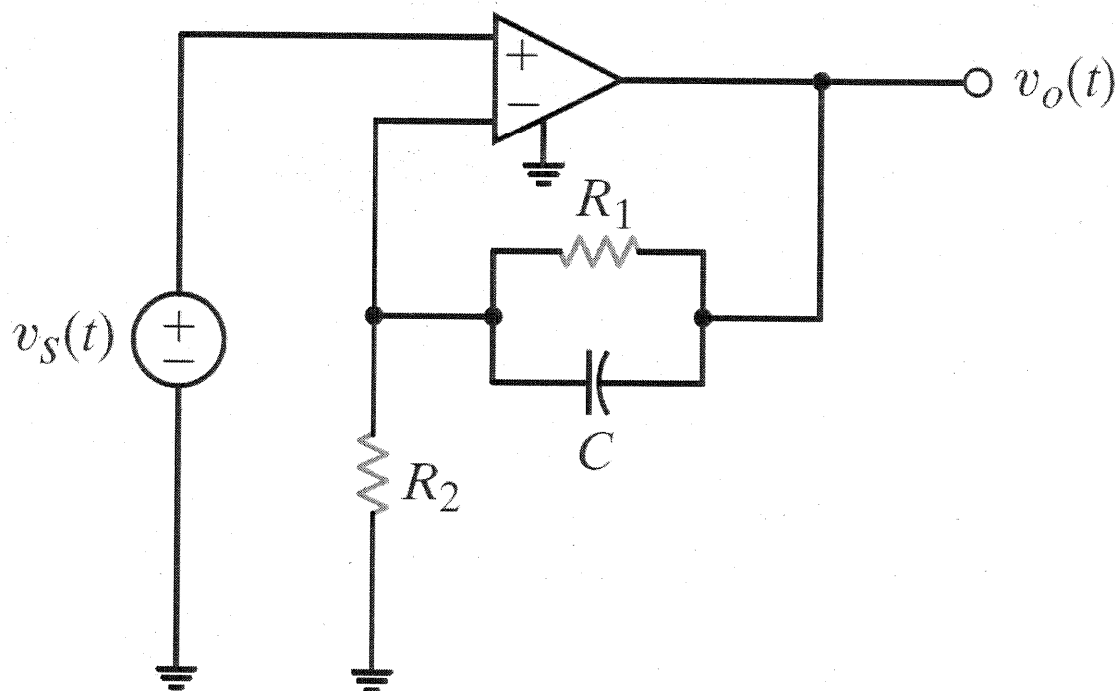


Figure P14.48

SOLUTION: Let $z_1 = R_2$ & $z_2 = \frac{R_1/sC}{R_1 + 1/sC} = \frac{R_1}{sCR_1 + 1}$

$$\frac{V_o}{V_s} = 1 + \frac{z_2}{z_1} = 1 + \frac{R_1/R_2}{sCR_1 + 1} = \frac{sCR_1 + 1 + R_1/R_2}{sCR_1 + 1} = \frac{1}{R_2} \left[\frac{sCR_1R_2 + R_1 + R_2}{sCR_1 + 1} \right]$$

$$\boxed{\frac{V_o}{V_s} = \left(1 + \frac{R_1}{R_2}\right) \left(\frac{sCR_p + 1}{sCR_1 + 1}\right) \quad R_p = \frac{R_1R_2}{R_1 + R_2}}$$