

$$\frac{v_e y_1 + v_s y_4}{y_1 + y_2 + y_3 + y_4} = v = -\frac{v_s y_5}{y_3}$$

$$(v_e y_1 + v_s y_4) y_3 = -v_s y_5 (y_1 + y_2 + y_3 + y_4)$$

$$v_e y_1 y_3 = -v_s (y_5 (y_1 + y_2 + y_3 + y_4) - v_s y_4 y_3)$$

$$\frac{v_s}{v_e} = \frac{-y_1 y_3}{y_5 (y_1 + y_2 + y_3 + y_4) + y_3 y_4}$$

ok.

on the

$$\frac{v_s}{v_e} = \frac{-\frac{1}{R_1} j C_3 \omega}{(j C_3 \omega)(j C_4 \omega) + \frac{1}{R_5} \left(\frac{1}{R_1} + \frac{1}{R_2} + j C_3 \omega + j C_4 \omega \right)}$$