

The schematic below shows a $0^\circ - 180^\circ$ phase shifter. When fed by a sinusoidal signal, $V_{in} = V_{in}^0 \sin(\omega t)$, the circuit produces a sinusoidal output signal shifted in phase relative to the input, $V_{out} = V_{in}^0 \sin(\omega t - \phi)$. Determine the phase shift ϕ for this circuit in terms of R_1 , C_1 , R and ω , the angular frequency of the input signal. Note that C and R_1 have fixed values and that R is a variable resistor.

