The schematic below shows a 0° - 180° 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 \( \phi \) for this circuit in terms of \( R_1, C_1, R \) and \( \omega \), the angular frequency of the input signal. Note that \( C \) and \( R_1 \) have fixed values and that \( R \) is a variable resistor.