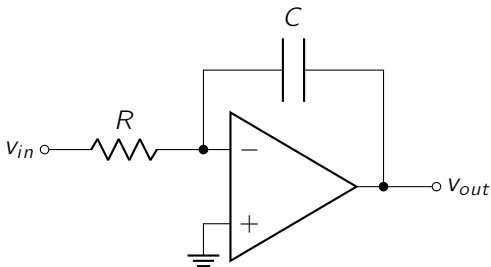


Op-Amp Integrator Circuit

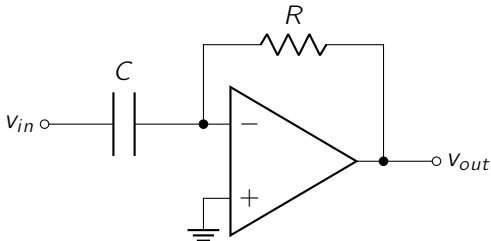


$$V_{out} = -\frac{1}{RC} \int v_{in} dt$$

$$Z_{in} = R$$

$$Z_{out} = 0$$

Op-Amp Differentiator Circuit



$$V_{out} = -RC \frac{d}{dt} v_{in}$$

$$Z_{in}(s) = \frac{1}{sC}$$

$$Z_{out} = 0$$