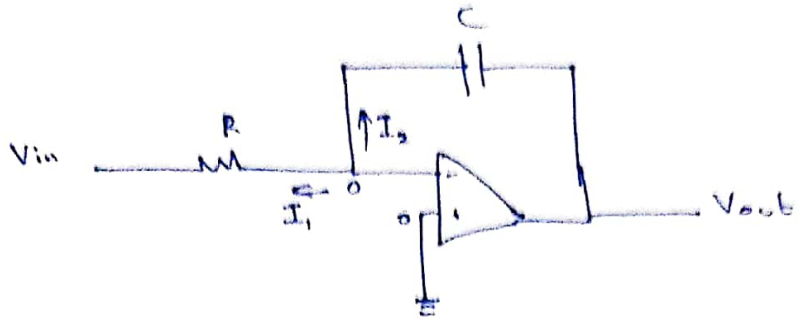
Integrator



→ Kirchoff's

$$\frac{0 - V_{in}}{R} + C\frac{d(0 - V_{out})}{dt} = 0$$

~~$-V_{in}$~~

fourier $\quad -\frac{V_{in}(j\omega)}{R} + -Cj\omega\, V_{out}(j\omega) = 0.$

$$V_{out}(j\omega) = -\frac{V_{in}(j\omega)}{RCj\omega}$$

$$\therefore H(j\omega) = \frac{-1}{RCj\omega} = \frac{j}{RC\omega}$$

$$\therefore |H(j\omega)| = \frac{1}{RC\omega}$$

$$\angle H(j\omega) = \frac{\pi}{2}$$