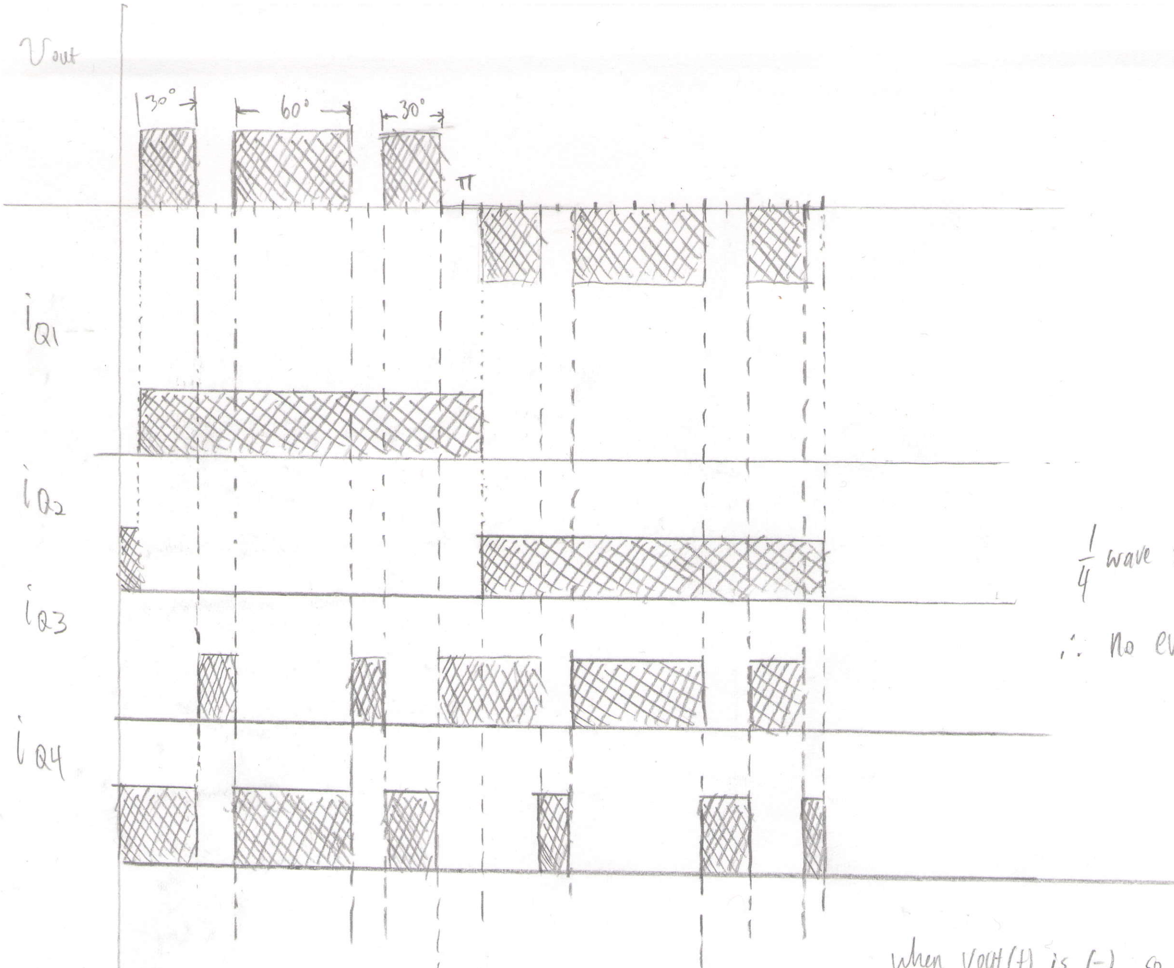

$\frac{1}{4}$ wave symmetry

∴ no even harmonics

when vout(t) is (-), so is sin(wt)

All angles are in radians

$$a_n = \frac{1}{\pi}\int_0^{2\pi} v_{out}(t)\sin(n\omega t)\,d(\omega t)$$

$$b_n = \frac{1}{\pi}\int_0^{2\pi} v_{out}(t)\cos(n\omega t)\,d(\omega t)$$

evaluate over π and multiply by 2

$$a_n = \frac{480}{\pi}\left[\int_{0.175}^{0.698}\sin(n\omega t)\,d(\omega t) + \int_{1.047}^{2.09}\sin(n\omega t)\,d(\omega t) + \int_{2.44}^{2.97}\sin(n\omega t)\,d(\omega t)\right]$$

$$b_n = \frac{480}{\pi}\left[\int_{0.175}^{0.698}\cos(n\omega t)\,d(\omega t) + \int_{1.047}^{2.09}\cos(n\omega t)\,d(\omega t) + \int_{2.44}^{2.97}\cos(n\omega t)\,d(\omega t)\right]$$

$$(a_1, b_1, a_3, b_3) = (219.5, -0.583, 37.91, -0.877)$$

$$c_1 = \sqrt{a_1^2 + b_1^2} = \sqrt{219.5^2 + 0.583^2} = 219.5, \quad c_3 = 37.92$$

$$Z_1 = \sqrt{(6\,\Omega)^2 + [(377)(10(10)^{-3})]^2} = 7.09, \quad Z_3 = 12.8$$

Fundamental RMS current: $\frac{c_1}{\sqrt{2}Z_1} = 21.9A$, 3rd harmonic: $\frac{c_3}{\sqrt{2}Z_3} = 2.09\,A$