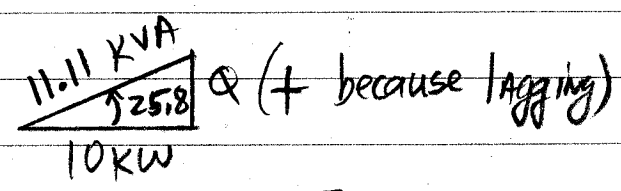


$$\tilde{S} = \frac{P}{\text{pf}} \angle \cos^{-1}(\text{pf})$$



$$= \frac{10 \text{ kW}}{0.9} \angle \cos^{-1}(0.9)$$

Also,  $Q = P \sqrt{\left(\frac{1}{\text{pf}}\right)^2 - 1} = 4.84 \text{ kVAR}$

$$\tilde{S} = \textcircled{a} 11.11 \angle 25.8^\circ \text{ kVA} = 10 \text{ kW} + j4.84 \text{ kVAR}$$

$$S = VI^*, \quad \textcircled{b} \quad I = \frac{S^*}{V^*} = \frac{11.11 \angle -25.8}{416 \angle 0} = 26.7 \angle -25.8 \text{ A}$$

©, OK, if  $I = 26.7 \angle 0$ , then  $\tilde{V} = 416 \angle +25.8$

$$p(t) = VI [\cos(\theta_v - \theta_i) + \cos(2\omega t + \theta_v + \theta_i)]$$

$$p(t) = 11.11 [0.9 + \cos(2\omega t + 25.8^\circ)] \text{ kW}$$