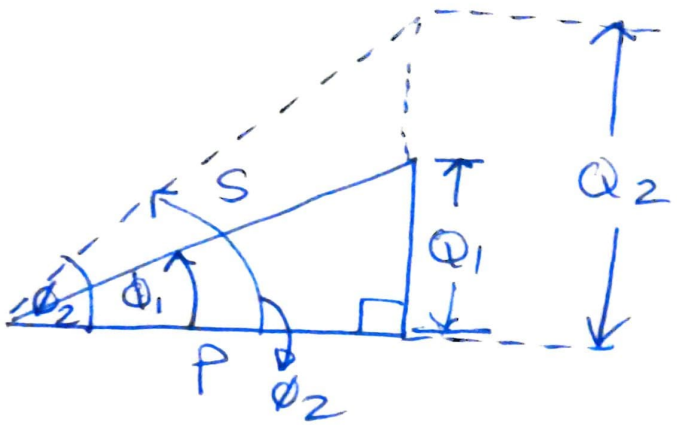

$$Q_1 = P_1 \tan(\phi_1)$$
$$Q_2 = P_2 \tan(\phi_2)$$

$$P_1 = P_2 = P$$

So, $\Rightarrow$ $Q_1 = P(\tan(\phi_1))$, $Q_2 = P(\tan(\phi_2))$

$$Q_C = Q_1 - Q_2 = P\tan(\phi_1) - P\tan(\phi_2)$$

$$Q_C = \frac{(V_{RMS})^2}{X_C}, \Rightarrow X_C = \frac{(V_{RMS})^2}{Q_C}$$

However, $\Rightarrow$ $X_C = \frac{1}{\omega C} = \frac{1}{2\pi f C}$

So, $\Rightarrow$ $\frac{1}{2\pi f C} = X_C = \frac{(V_{RMS})^2}{Q_C}$

So, $\Rightarrow$ $\frac{1}{2\pi f C} = \frac{(V_{RMS})^2}{Q_C}$

$$\Rightarrow \boxed{C = \frac{Q_C}{2\pi f (V_{RMS})^2} = \frac{P\tan(\phi_1) - P\tan(\phi_2)}{2\pi f (V_{RMS})^2}}$$