Lecture 28

2. The admittance of a circuit is (0.05-j0.08)S. Find the values of the resistance and inductive reactance of the circuit if they are a) in parallel b) in series.
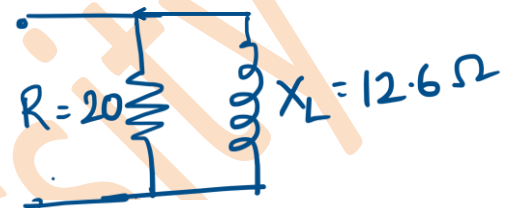
Solution:

(i) Parallel.

$Y = 0.05 - j0.08$.

Compare with $Y = G - jB_L$

$G = 0.05$ 　　　　$R = \dfrac{1}{G} = 20\,\Omega$

$B_L = 0.08$ 　　　$X_L = \dfrac{1}{B_L} = 12.6\,\Omega$

(ii) Series

$Z = \dfrac{1}{Y} = \dfrac{1}{0.05 - j0.08} = 5.62 + j8.98$

$R = 5.62$

$X_L = 8.98$