Text Questions: 9-2, 9-9, 9-10, 9-12

9-2.

What is the skin effect? How does skin effect change the resistance of an AC transmission line?

9-9.

What happens to the receiving end voltage as the load on a transmission line is increased if the load has a lagging power factor? Sketch a phasor diagram showing the resulting behavior.

9-10.

What happens to the receiving end voltage as the load on a transmission line is increased if the load has unity power factor? Sketch a phasor diagram showing the resulting behavior.

9-12.

What is the significance of the angle sigma between Vs and Vr in a transmission line?

Text Problems: 9-16

use 150 MW rather than 50 MW

Problem 1:

Problem 2:

FE Problem 1:

Fr = sqrt(1/(4pi^2LC)) = 1678 Hz

(C) = 1.68 x 10^3

FE Problem 2:

N1/N2 = a = sqrt(R1/R2) = 15

(A) = 15:1