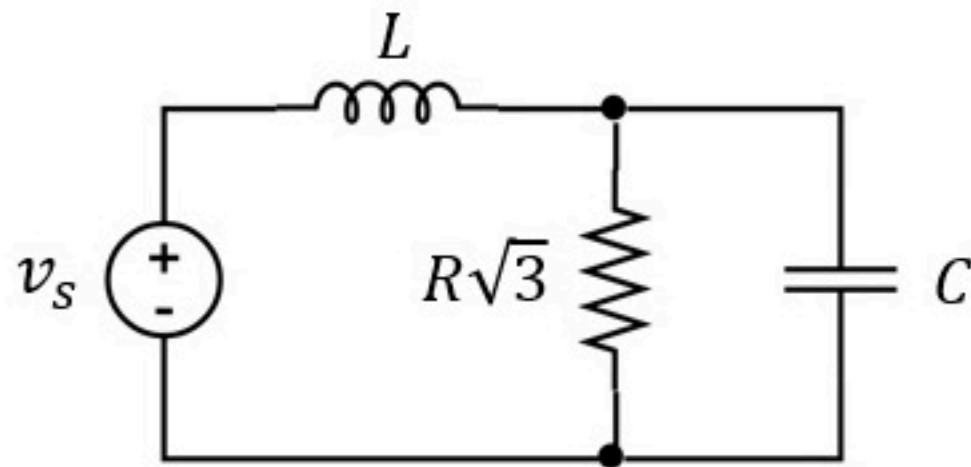# AC power 002

$$v_s(t) = A_1 \cos(1000t + B_1)$$

(a) Find the <u>instantaneous</u> power supplied by the power supply

$$p = A_2\sqrt{3} + A_3 \cos(2000t + B_3) \quad \text{with } -180° < B_3 \le 180$$

(b) Find the <u>instantaneous</u> power received by the inductor

$$p = A_4\sqrt{3} + A_5 \cos(2000t + B_5) \quad \text{with } -180° < B_5 \le 180$$

Given Variables:

A1 : 6 V
B1 : 45 degrees
R : 2 ohm
C : 500 uF
L : 1 mH

Calculate the following:

A2 (W) :

9 ✓

A3 (W) :

18 ✓

B3 (degrees) :

120 ✓

A4 (W) :

0 ✓

A5 (W) :

18 ✓

B5 (degrees) :

-120 ✓

> Hint: Find the v(t) and i(t), or use the equations (video lecture)