Chapter 11, Solution 53.

$$S = S_A + S_B + S_C = 4000(0.8–j0.6) + 2400(0.6+j0.8) + 1000 + j500$$

$$= 5640 + j20 = 5640\angle 0.2^\circ$$

(a) $$\boldsymbol{I^*_{rms} = \frac{S_B}{V_{rms}} + \frac{S_A + S_C}{V_{rms}} = \frac{S}{V_{rms}} = \frac{5640\angle 0.2^\circ}{120\angle 30^\circ} = 47\angle -29.8^\circ}$$

$$\boldsymbol{I = 47\angle 29.8^\circ = \underline{47\angle 29.8^\circ\ A}}$$

(b) pf = cos(0.2˚) **≈ <u>1.0 lagging</u>**.