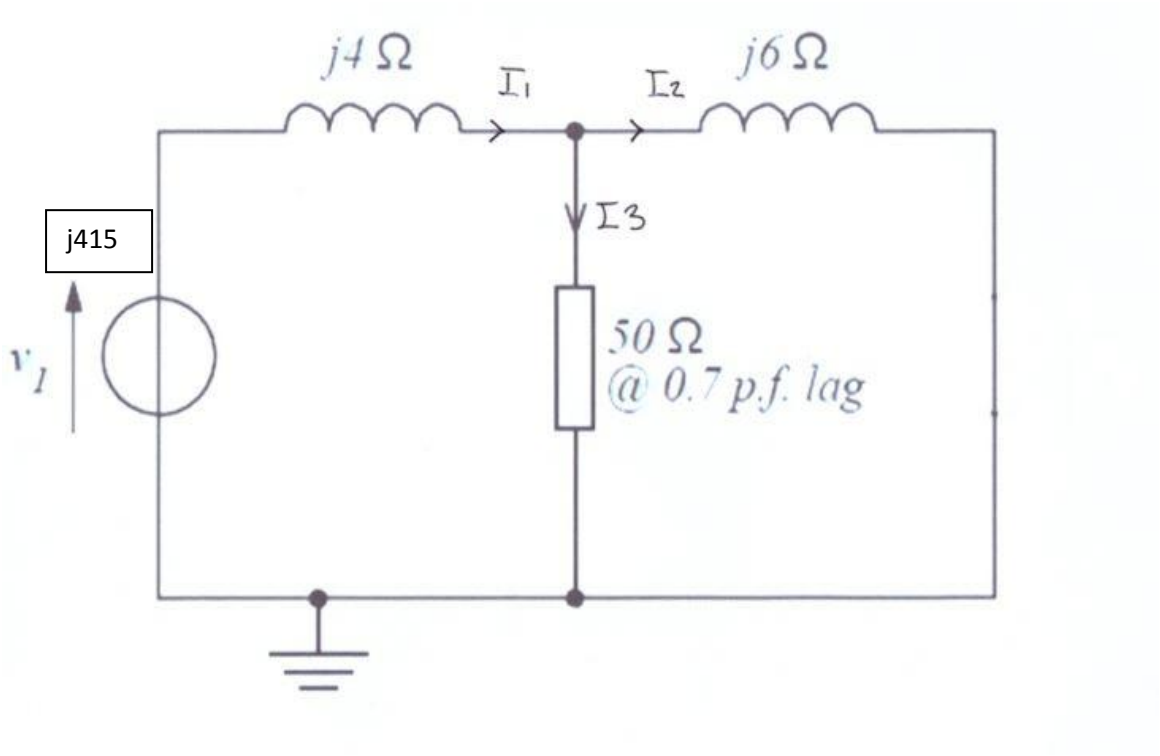


In the above diagram I have removed V_2

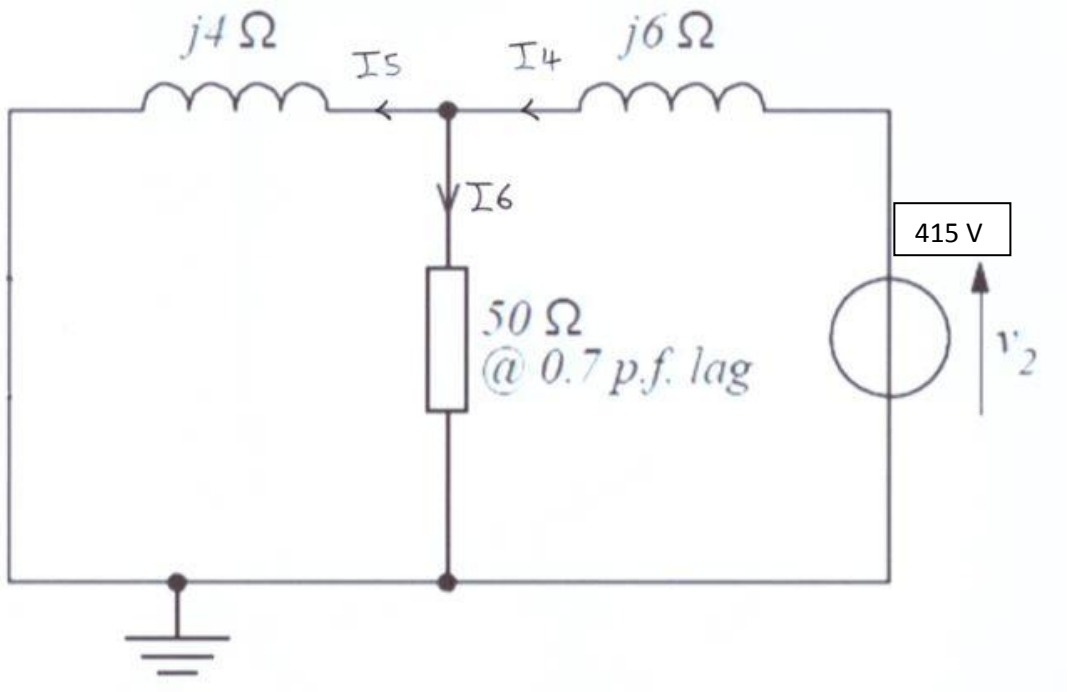
I need to find I_1 , I_2 and I_3

$$I_1 = \frac{V_1}{j4 + \frac{50 \times j6}{50 + j6}} = \frac{415}{j4 + \frac{300}{56}} = \frac{415}{9.357} = 44.35\,A$$

$$I_2 = I_1 \times \frac{50}{50 + j6} = 44.35 \times \frac{50}{50 + j6} = 39.59\,A$$

$$I_3 = I_1 \times \frac{j6}{50 + j6} = 44.35 \times \frac{j6}{50 + j6} = 4.75\,A$$

In the diagram below I have removed V_1



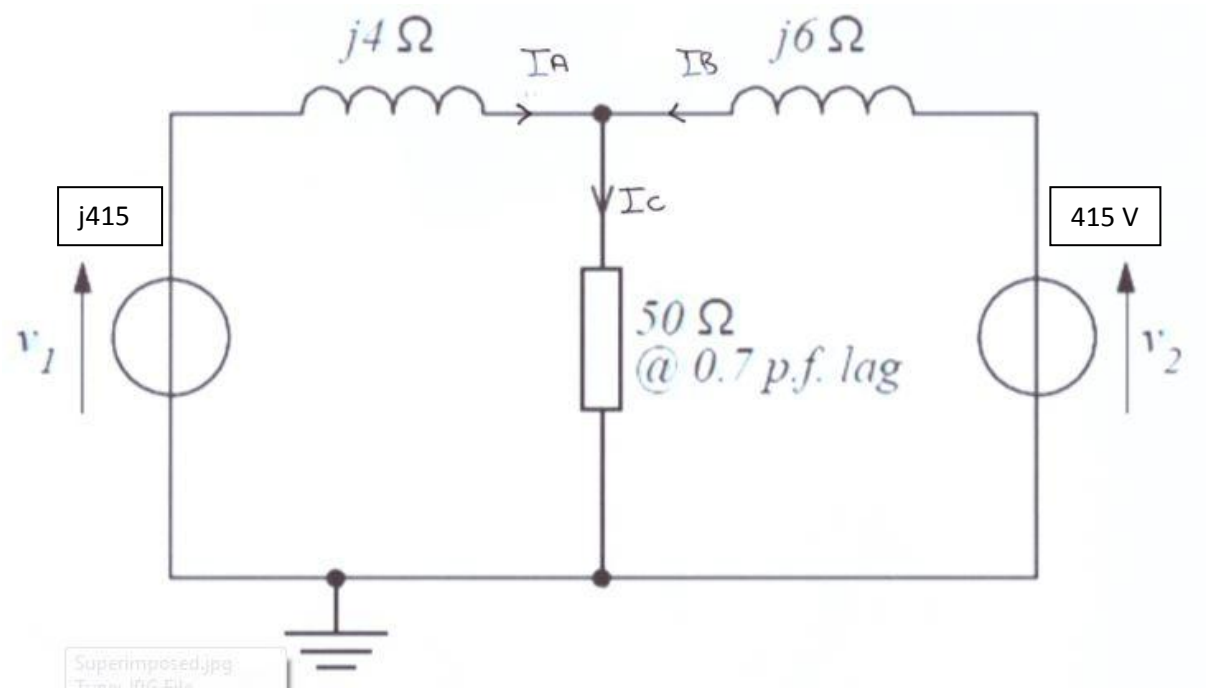
I need to find I_4 , I_5 and I_6

$$I_4 = \frac{V_2}{j6 + \frac{50 \times j4}{50 + j4}} = \frac{415}{j6 + \frac{200}{54}} = \frac{415}{9.704} = 42.77\ A$$

$$I_5 = I_4 \times \frac{50}{50 + j4} = 42.77 \times \frac{50}{50 + j4} = 39.60\ A$$

$$I_6 = I_4 \times \frac{j4}{50 + j4} = 42.77 \times \frac{j4}{50 + j4} = 3.16\ A$$

I now need to superimpose the 2 solutions



$I_A = I_1 - I_5 = 44.35 - 39.59 = 4.76$

$I_B = I_4 - I_2 = 42.77 - 39.59 = 3.18$

$I_C = I_3 + I_6 = 4.75 + 3.96 = 8.71$

So my answer to this question is that the current flowing through the 50Ω resistor is = 8.71 amps

The above working out is exactly as described in the hand out.

It seems to make sense to me because the values all add up

However, I don't think I have calculated this correctly as I have not used polar or rectangular methods.

I am wondering if someone can advise on this please??