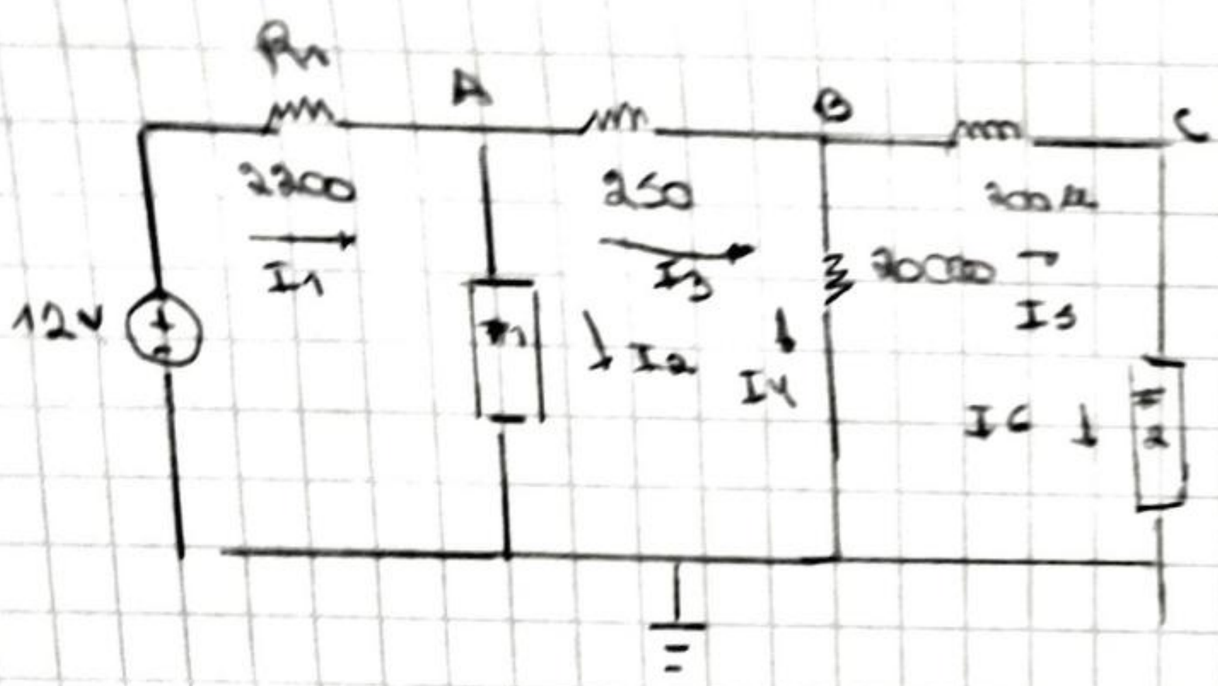

impedancias

$\#1: 480 + \frac{10000}{s} = \frac{480s + 10000}{s}$

$\#2: 1000 + \frac{3030.30}{s} = \frac{1000s + 3030.30}{s}$

Nodo A: $I_1 = I_2 + I_3$

$$\frac{12 - V_A}{2200} = \frac{V_A}{\frac{480s + 10000}{s}} + \frac{V_A - V_B}{250}$$

$$\frac{12 - V_A}{2200} = \frac{V_A s}{480s + 10000} + \frac{V_A - V_B}{250}$$

$$(12 - V_A)(250)(480s + 10000) = (V_A s)(2200)(250) + (V_A - V_B)(2200)(480s + 10000)$$

$$(12 - V_A)(120000s + 2.5M) = 550000 V_A s + (V_A - V_B)(1056000s + 22M)$$

$$7440000s - 120000 V_A + 30M = 2.5M V_A = 550000 V_A s + 1056000 s V_A + 22M V_A - 1056000 V_B - 22M V_B \quad (1)$$

Nodo B: $I_3 = I_4 + I_5$

$$\frac{V_A - V_B}{250} = \frac{V_B}{20000} + \frac{V_B - V_C}{0.00025}$$

$$80(V_A - V_B) = V_B + \frac{100M(V_B - V_C)}{s}$$

$$80 V_A s - 80 V_B s = V_B s + 100M V_B - 100M V_C \quad (2)$$

Nodo C: $I_5 = I_C$

$$\frac{V_B - V_C}{0.00025} = \frac{V_C s}{1000s + 3030.30} = (1000s + 3030.30)(V_B - V_C) = V_C s (0.00025)$$

$$1000 s V_B + 3030.30 V_B - 1000 s V_C - 3030.30 V_C = V_C s^2 0.0002 \quad (3)$$

de (1)

$$1000 s V_B + 3030.30 V_B = V_C s^2 0.0002 + 1000 s V_C + 3030.30 V_C$$

$$= V_C (s^2 0.0002 + 1000 s + 3030.30)$$

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de ①

$144000S - 120000VA + 30M \cdot 2.2MVA = 550000VA + 1056000SVA + 22MVA - 1056000VB - 22MVB$

$144000S - 120000VA + 30M - 2.2MVA - 550000VA - 1056000SVA - 22MVA + 1056000VB + 22MVB = 0$

$VA(-120000 - 2.2M - 550000S - 1056000S - 22M) + 144000S + 1056000VB + 22MVB$

$VA = \frac{-144000S - 1056000VB + 22MVB}{(-120000 - 2.2M - 550000 - 1056000S - 22M)}$

$VA = \frac{-144000S + 8094400VB}{(-1606000S - 24320000)}$ ④

④ en ② $\frac{-1152000000S^2 + 167552000SVB}{(-1606000S - 24320000)} - 80VBS = VBS + 100MVB - 100MVC$

$\frac{-1152000000S^2 + 167552000SVB}{(\ldots\ldots)} - 81VBS - 100MVB = -100MVC$

$-1152000000S^2 + 167552000SVB - (81VBS)(-1606000S - 24320000) - 100M(-1606000S - 24320000) = -100MVC(-1)$

$-1152000000S^2 + 167552000SVB - (13008600VBS^2 - 1969920000VBS) - (-1.6\times10^{14}S - 2.4\times10^{15})$

$= VC(+1.606\times10^{14}S + 2.432\times10^{15})$

$-1152000000S^2 + 167552000SVB - 13008600VBS^2 + 1969920000VBS + 1.6\times10^{14}S + 2.4\times10^{15} =$

$VC(1.606\times10^{14}S + 2.432\times10^{15}) + 1152000000S^2 - 1.6\times10^{14}S - 2.4\times10^{15} =$

$VB(167552000S - 13008600S^2 + 1969920000S)$

$VB: \frac{VC(1.606\times10^{14}S + 2.432\times10^{15}) + 1152000000S^2 - 1.6\times10^{14}S - 2.4\times10^{15}}{167552000S - 13008600S^2 + 1969920000S}$ ⑤

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③ en ③

$$\frac{Vc(1.606\times10^{17}s^2 + 2.432\times10^{18}s) + 1.152\times10^{17}s^3 - 1.6\times10^{17}s^2 - 2.4\times10^{18}s}{(\ldots\ldots)(s^2 0.0002 + 100s + 3030.30)}$$

$(2137472000s - 1300860000s^2)(s^2 0.0002 + 100s + 3030.3)$

$(-26017.2x^4 - 13008557250 5.6x^3 + 17432723942 00x^2 + 647718 ...01600x)$

$$3030.30\,VB = \frac{Vc(4.86\times10^{17}s + 7.36\times10^{18}) + 3.49\times10^{11}s^2 - 4848.48\times10^{14}s - 7272.72\times10^{..}}{}$$

Como tengo Vc a la izquierda y derecha debo despejar

$\ldots = Vc(-26017.2s^4 - 13008557250 5.6s^3 + 17432723942 00s^2 + 647718914 01600s)$

$= Vc(-1.605982567\times10^{17}s^2 - 2.9179\times10^{18}s - 7.36\times10^{18})$

$$\frac{Vc}{12} = \frac{1.152\times10^{11}s^3 - 1.6\times10^{17}s^2 - 2.4\times10^{18}s + 3.49\times10^{11}s^2 - 4848.48\times10^{14}s - 7272.72\times10^{14}}{12.(-26017.2s^4 - 13008557250 5.65s^3 - 1.6059\times10^{17}s^2 - 2.9179\times10^{18}s - 7.36\ldots}$$

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