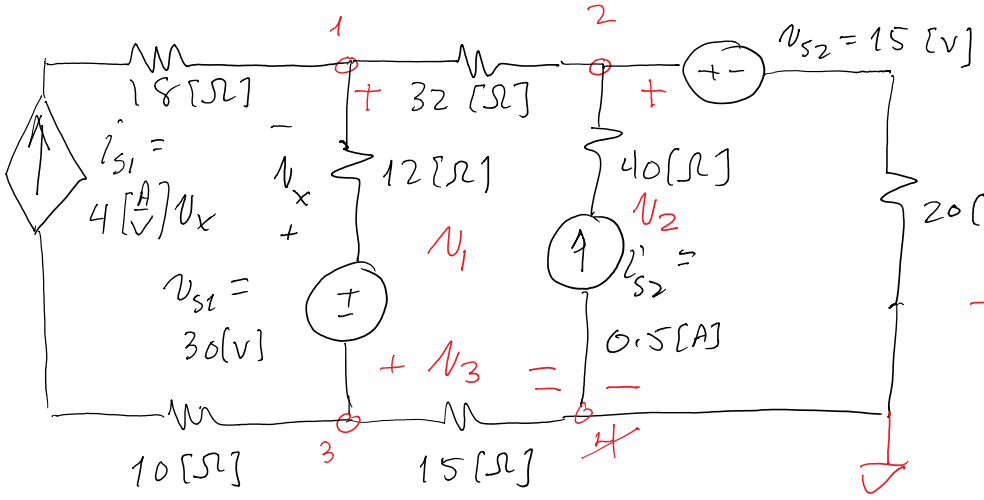
NUM 1



essential nodes: 4

$\Rightarrow$ 3 NVE eqns

1 auxiliary (v_x)

$-v_x + 30 + v_3 - v_1 = 0$

$v_x = v_3 - v_1 + 30$

..

(3) $\frac{v_3}{15} + 4\left[\frac{A}{V}\right] v_x + \frac{v_3 - v_1 + 30}{12} = 0$

(1) $-4\left[\frac{A}{V}\right] v_x + \frac{v_1 - v_3 - 30}{12} + \frac{v_1 - v_2}{32} = 0$

(2) $\frac{v_2 - v_1}{32} - 0.5\,[A] + \frac{v_2 - 15}{20} = 0$

$v_x = v_3 - v_1 + 30$