

Find P_{total} if $v_o = 5V$

if $v_o = 5V$ then $V_{9A} + 20 = 5V$

$$V_{9A} = \underline{\underline{-15V}}$$

$v_o = 5 = 10v_a$ so $v_a = \underline{\underline{0.5V}}$

then $v_a - v_g = 5V$ or

$$v_g = v_a - 5 = \underline{\underline{-4.5V}}$$

also, $i_{10v_a} = 9 + 6 = 15A \uparrow$

calculate Powers

$$P_{9A} = VI = (-15)(9) = -135W$$

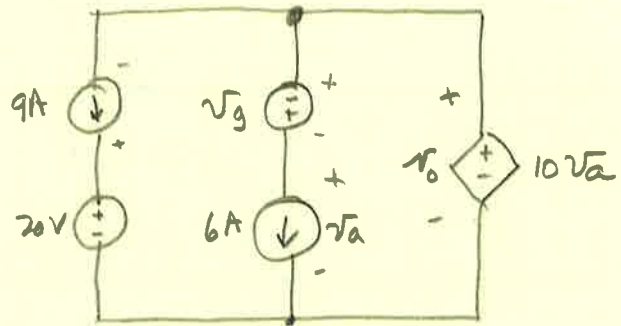
$$P_{20V} = VI = (20)(9) = 180W$$

$$P_{v_g} = VI = (-4.5)(6) = 27W$$

$$P_{6A} = VI = (0.5)(6) = 3W$$

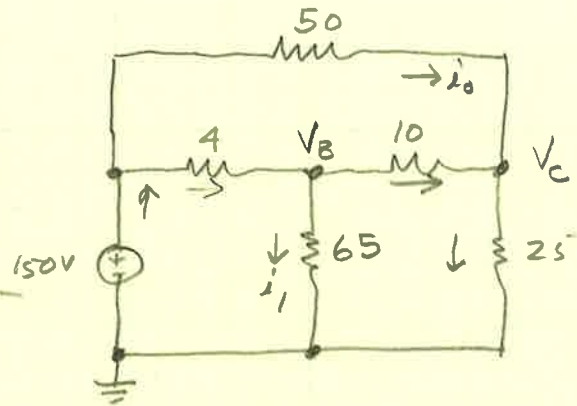
$$P_{10v_a} = VI = (10)(15) = 150W$$

Does $P_{\text{gen}} = P_{\text{abs}}$? $-135 + 180 + 27 + 3 - 150 = 0 \quad \checkmark$



$$i_0 = 1A$$

- a) Find i_1
 b) Find Power for all R's
 3) verify $P_{dev} = P_{abs}$



$$\begin{aligned} a) \quad V_C &= 150 - 50(i_0) = 100V \\ i_{25} &= V_C / 25 = 4A \\ i_{10} &= i_{25} - i_0 = 3A \end{aligned}$$

$$V_B = V_C + i_{10}(10) = 100 + 30 = 130V$$

$$i_4 = \frac{150 - V_B}{4} = 5A$$

$$i_{65} = \frac{V_B}{65} = \boxed{2A = i_1}$$

$$\begin{aligned} b) \quad P_{50} &= i^2 R = (1)^2 50 = 50W \\ P_4 &= i^2 R = (5)^2 4 = 100W \\ P_{65} &= i^2 R = (2)^2 65 = 260W \\ P_{10} &= i^2 R = (3)^2 10 = 90W \\ P_{25} &= i^2 R = (4)^2 25 = 400W \end{aligned}$$

$$P_{absorbed} = 900W$$

$$c) \quad i_{150} = i_{50} + i_4 = 1 + 5 = 6A$$

$$P_{150} = (-6)(150) = 900W \text{ DELIVERED} \quad \checkmark$$