

ENGR 065: HW 2-4

5- b) power across 8Ω resistor = $P_1 = V_1 i_1 \Rightarrow P_1 = 15 \cdot 1.20 = 1800W$

power across 3Ω resistor = $P_2 = V_2 i_2 \Rightarrow P_2 = 30 \cdot 10 = 300W$

Power across 6Ω resistor = $P_3 = V_3 i_3 \Rightarrow P_3 = 30 \cdot 5 = 150W$

6- a) KVL in loop
 $-10 + V_1 - 5 = 0 \Rightarrow V_1 = 15$

KVL loop
 $5 + V_2 + 15 = 0 \Rightarrow V_2 = -20$

KVL in loop
 $V_3 - V_2 - V_1 = 0 \Rightarrow V_3 = V_1 + V_2$
 $= 15 - 20 = -5V$

b) $I_1 = \frac{10+5}{200} = 0.075A$

$I_3 = \frac{10-15}{200} = -0.025A$

$I_2 = \frac{-5-15}{200} = \frac{-20}{200} = -0.1A$

c) $-25mA + 75mA + I_{10V} = 0$

$50mA + I_{10V} = 0$
 $I_{10V} = -50mA$

$I_{15V} + 100mA + 25mA = 0$

$-75mA - 100mA + I_{5V} = 0$
 $I_{5V} = 175mA$

$I_{15V} + 100mA + 25mA = 0$
 $15V - I_{15V} = -125mA$