



Princess Sumaya
University
for Technology

King Abdullah II School of Engineering

EE21221
Electric Circuits (1)
Section #1

Quiz # 2
Tuesday 16/11/2021

Name:

Q.1) Find i_8 , i_4 , i_{10} , i_2 , v_8 , v_4 , v_2 , and P_{ix} in the circuit shown in Figure Q.1. [8-Points]

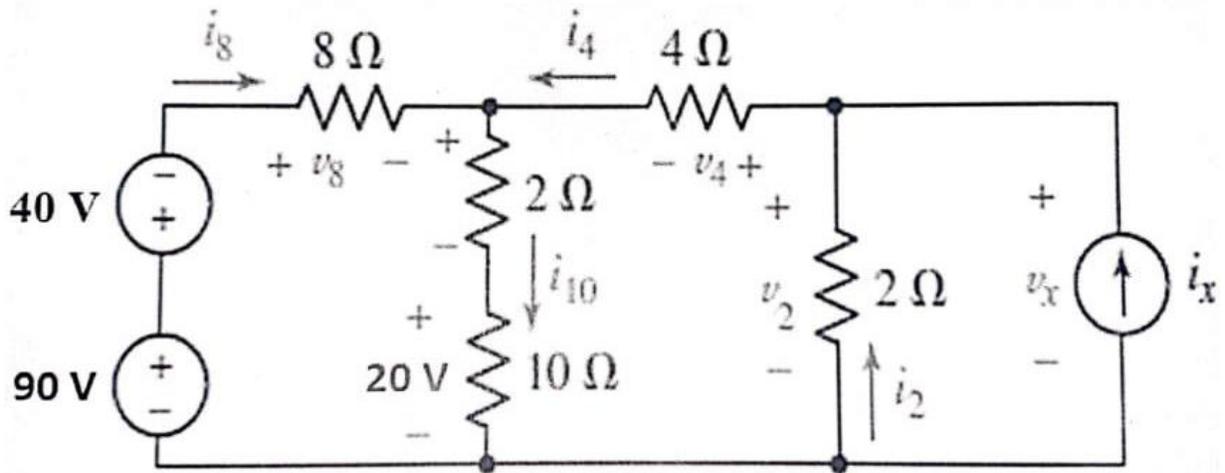
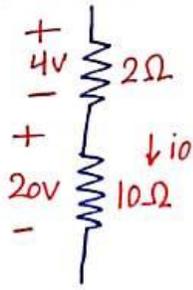


Figure Q.1

Solution:

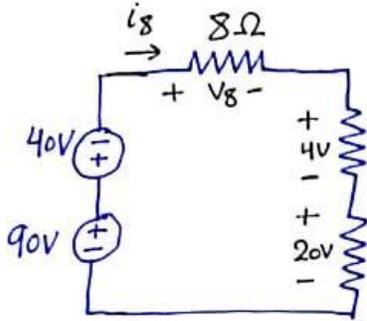
$i_8 =$ <input type="text" value="3.25A"/>	$i_4 =$ <input type="text" value="-1.25A"/>	$i_{10} =$ <input type="text" value="2A"/>	$i_2 =$ <input type="text" value="-9.5A"/>
$v_8 =$ <input type="text" value="26V"/>	$v_4 =$ <input type="text" value="-5V"/>	$v_2 =$ <input type="text" value="19V"/>	$P_{ix} =$ <input type="text" value="-156.75W"/>

Q1)



$$i_{10} = \frac{20}{10} = 2A$$

$$V_{2\Omega} = 2 * 2 = 4V$$

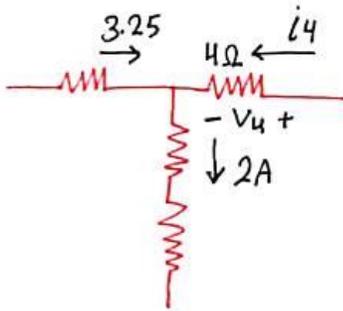


KVL

$$-90 + 40 + V_8 + 4 + 20 = 0$$

$$V_8 = 26V$$

$$i_8 = \frac{26}{8} = 3.25A$$

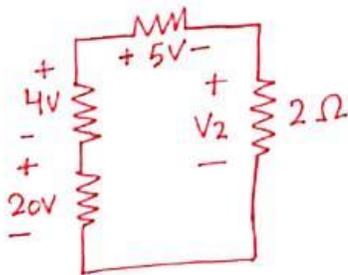


KCL

$$3.25 + i_4 - 2 = 0$$

$$i_4 = -1.25A$$

$$V_4 = i_4 * 4\Omega = -1.25 * 4 = -5V$$

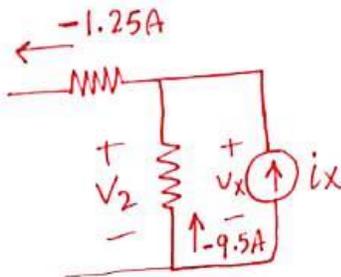


KVL

$$-20 - 4 + 5 + V_2 = 0$$

$$V_2 = 19V$$

$$i_2 = \frac{-19}{2} = -9.5A$$



KCL

$$i_x + (-9.5) - (-1.25) = 0$$

$$i_x = 8.25A$$

$$V_x = V_2 = 19V$$

$$P_{ix} = -19 * 8.25 = -156.75W$$

Q.2) In the circuit shown in Figure Q.2, find v_2 . [2-Points]

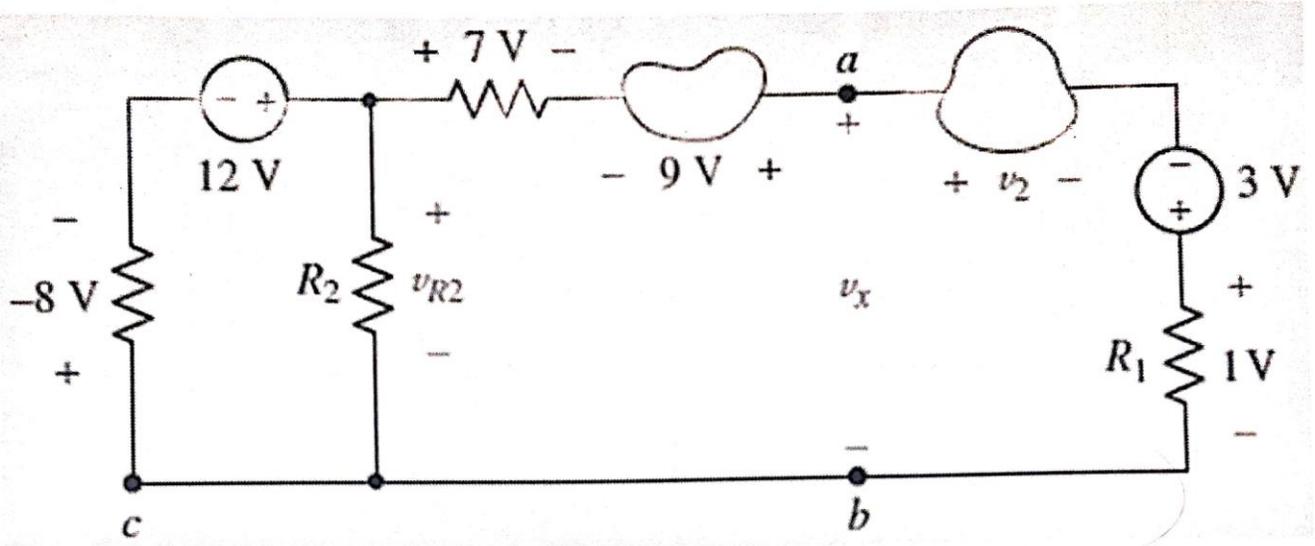


Figure Q.2

Solution:

$$v_2 = \boxed{24V}$$

KVL

$$+(-8) - 12 + 7 - 9 + v_2 - 3 + 1 = 0$$

$$\boxed{v_2 = 24V}$$