

AMERICAN UNIVERSITY OF BEIRUT
Department of Electrical and Computer Engineering
EECE210 Fall 2005

Quiz 1, November 1, 2005

Prof Karamneh

Directions:

- You will have 1.5 hrs for this quiz.
- No programmable calculators are allowed.
- Write down your name *in ink* on all the pages. DO IT NOW!
- Answers must be explained or derived. DO NOT just write down an answer.
- It is a good idea to read the whole test before you begin. Some problems are divided into several parts with percentages indicated. You might be able to solve different parts independently.
- DO NOT talk to any of your colleagues under any circumstances. You will be penalized without warning.

YOUR NAME HERE:

PROBLEM 1 (10%)

Consider the resistive network shown in figure 1. Find the source voltage V_s if the resistor R is $R = 4 \text{ K}\Omega$ and the voltage across it is $V_R = 12 \text{ volts}$.

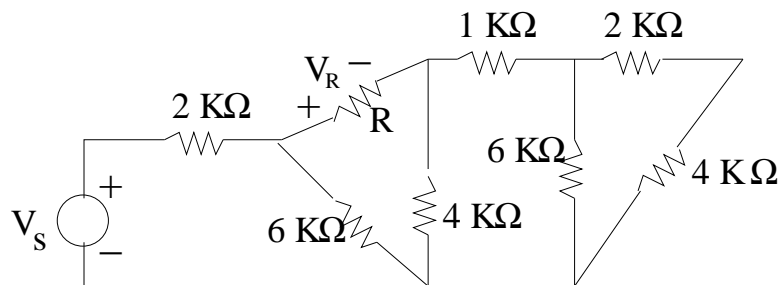
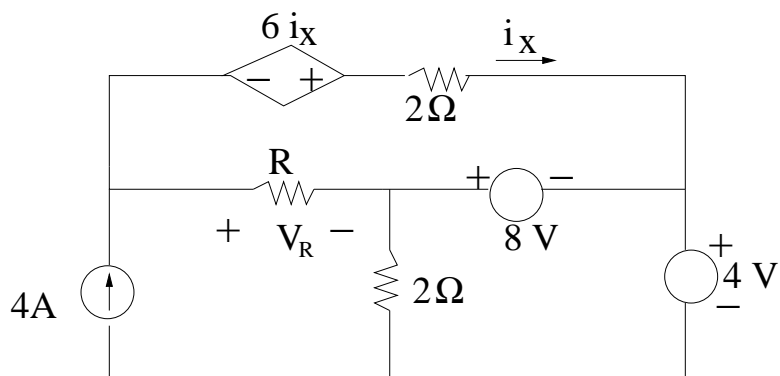


Figure 1: Problem 1

PROBLEM 2 (20%)

Consider the network shown in figure 2. Find the voltage V_R across the resistor R if $R = 2 \Omega$.



$$R = 2 \Omega$$

Figure 2: Problem 2

PROBLEM 3 (20%)

Consider the resistive network shown in figure 3.

- (a) Find the voltage across the resistance termed R for any value of R .
- (b) Find the maximum power P_{max} that could be transferred to the load resistance R .

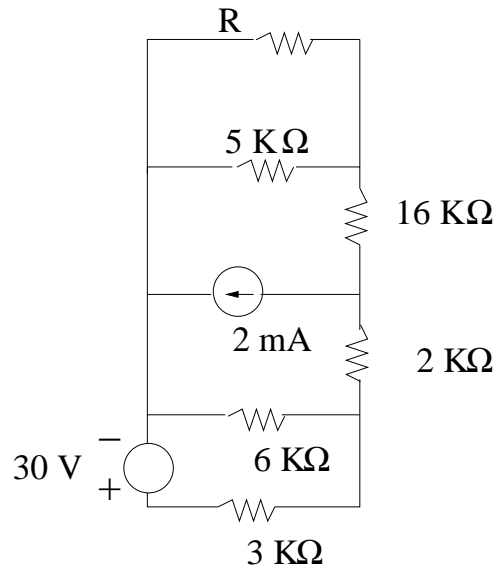


Figure 3: Problem 3

PROBLEM 4 (20%)

Consider the circuit shown in figure 4 below. The resistor R_o is varied until the power dissipated in this resistor is 250 W. Find the value of the resistor R_o that satisfies this condition.

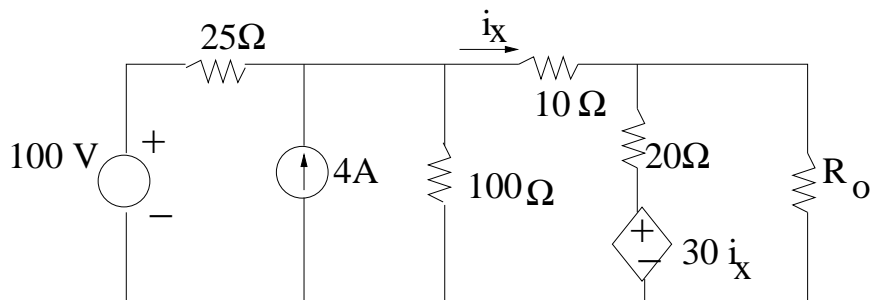


Figure 4: Problem 4

PROBLEM 5 (15%)

Consider the circuit shown in figure 5 below. Find the current i_X as indicated.

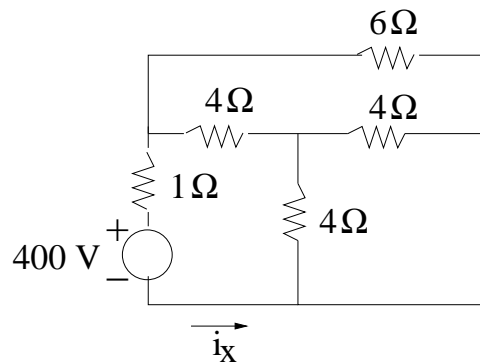


Figure 5: Problem 5

PROBLEM 6 (15%)

Consider the circuit shown in figure 6 below. Find the Thevenin equivalent resistance between the two terminals a and b.

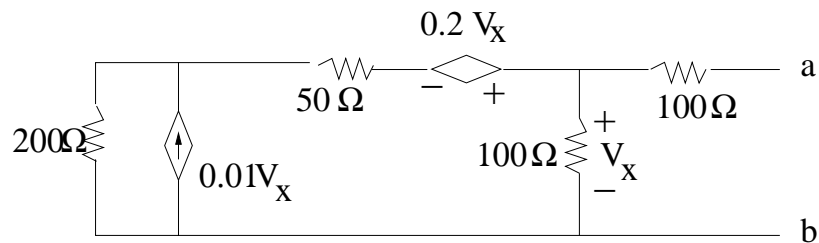


Figure 6: Problem 6