

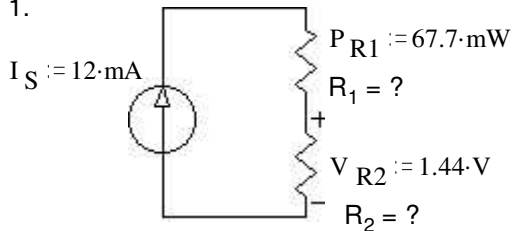
EE 2210 / 00 Exam 1 Preparation problems

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1/24/02
rev 9/15/05

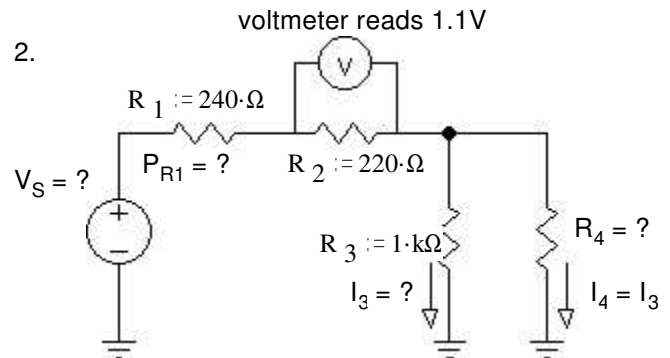
Old exams given in this class are available on the web, look on the homework page.

Know: Kirchoff's laws, Ohm's law, power, series, parallel, dividers, source models, superposition, Thevenin, Norton, Nodal and basic AC waveforms (HW 1 - 7). You should expect to see one or more problems which combine concepts covered in separately the first 6 homework sets. The problems below illustrate what I mean.

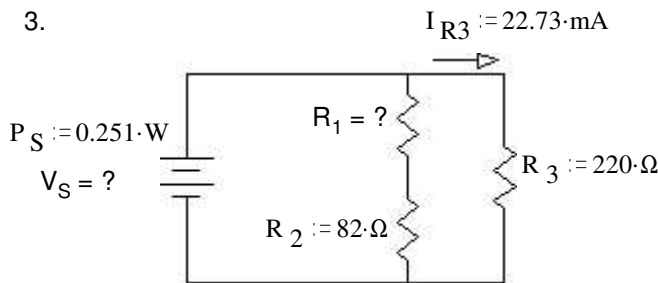
1.



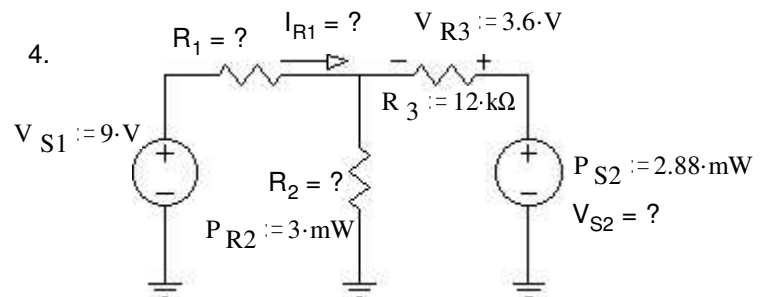
2.



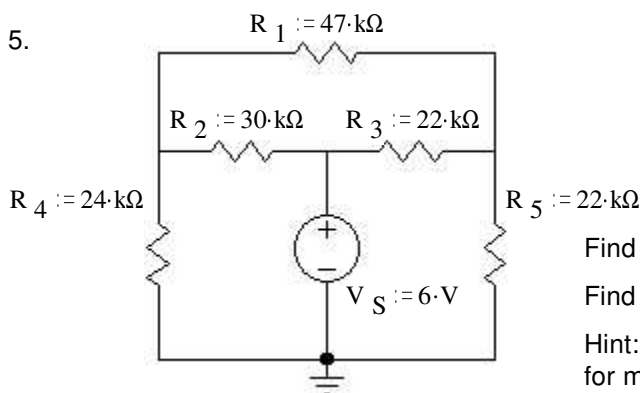
3.



4.



5.



Find all resistor voltages

Find all resistor currents

Hint: Use multiple equations to solve for multiple unknowns

6. Review basic AC concepts (HW 7).

7. Study the first page of HW 8 (Capacitors). Know how to combine in parallel & series. Be able to find final conditions and stored energy.

8. Also consider looking at an FE review book. I will put some FE-style multiple-choice problems on the exam. It helps to know the way they word their problems.

Answers

- | | | | | | |
|------------------------------|---------------------------|-------------------------------------|----------------------------------|--------------------------------|---------------------------------|
| 1. $R_1 := 470 \cdot \Omega$ | $R_2 := 120 \cdot \Omega$ | 2. $I_3 := 2.5 \cdot \text{mA}$ | $R_4 := 1 \cdot \text{k}\Omega$ | $V_S := 4.8 \cdot \text{V}$ | $P_{R1} := 6 \cdot \text{mW}$ |
| 3. $V_S := 5 \cdot \text{V}$ | $R_1 := 100 \cdot \Omega$ | 4. $R_1 := 15 \cdot \text{k}\Omega$ | $R_2 := 12 \cdot \text{k}\Omega$ | $V_{S2} := 9.6 \cdot \text{V}$ | $I_{R1} := 0.2 \cdot \text{mA}$ |
| 5. $0.22 \cdot \text{V}$ | $0.005 \cdot \text{mA}$ | $3.271 \cdot \text{V}$ | $0.109 \cdot \text{mA}$ | $3.051 \cdot \text{V}$ | $0.139 \cdot \text{mA}$ |
| $2.729 \cdot \text{V}$ | $0.114 \cdot \text{mA}$ | $2.949 \cdot \text{V}$ | $0.134 \cdot \text{mA}$ | | |