Give complete solutions. Closed book, closed notes. Show all you work, any unsupported answers will not be graded. No exchange of materials. Underline your answer or you lose half of your credit.

3.63, 4.20, 4.22, 4.35, 5.24, 5.47, 6.25, 6.22, 10.50 and 10.71

1. Find R_{eq} (10 pts).
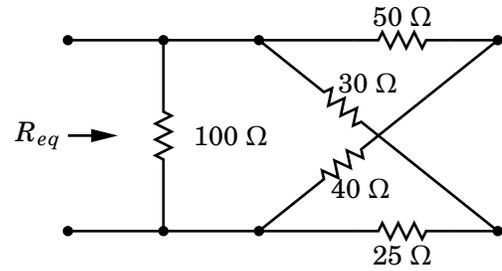
2. Find i_1 (10 pts).
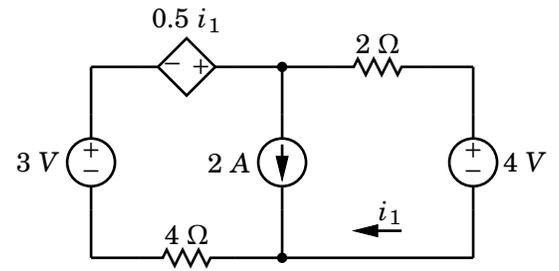
3. Find voltage difference cross the 4 Ω resistor (10 pts).

10 Ω

5 V

6 V   4 Ω

2 A

1 Ω   2 Ω
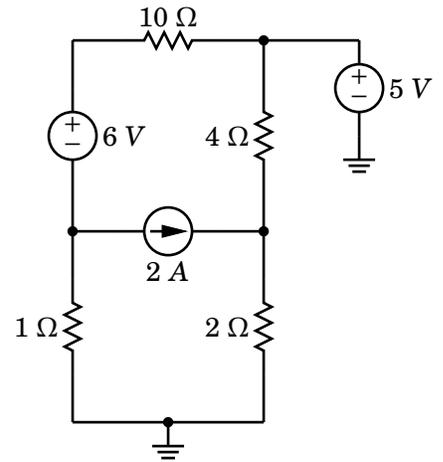
4. Find i_x (10 pts).
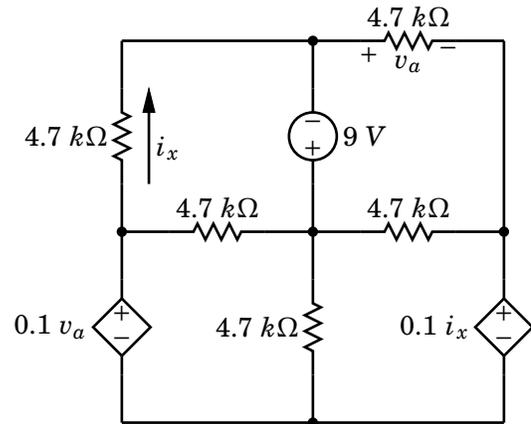
5. Determine the power dissipated by the 5.8 kΩ resistor (10 pts).

9.7 $k\Omega$

5.8 $k\Omega$

10 $k\Omega$

3 V

10 $k\Omega$

4 mA
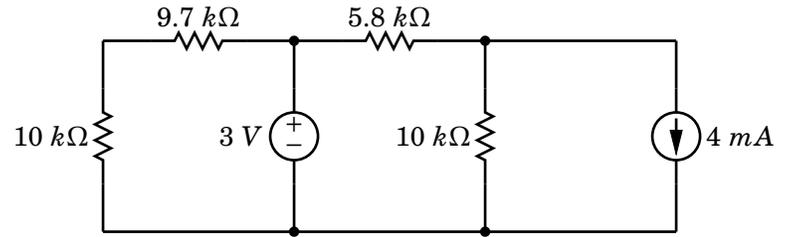
6. Find the equivalent circuit between a and b (10 pts).

7. Find v_{out} (10 pts).

$$10\ k\Omega$$

$$1\ k\Omega$$

$$V_1$$

$$3\ V$$

$$3\ \mu A$$

$$1.5\ M\Omega$$
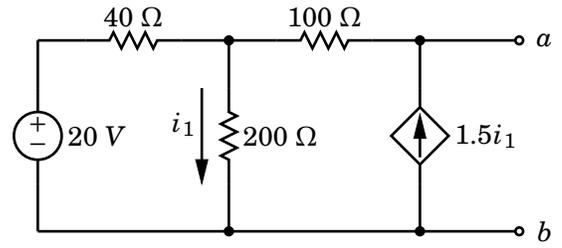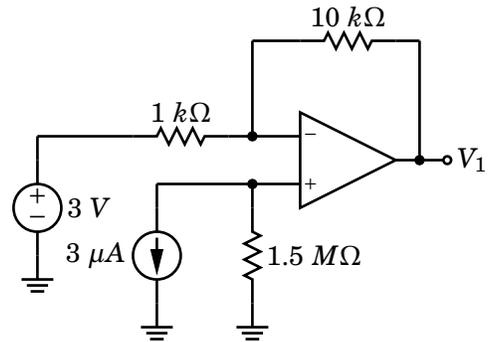
8. Find v_{out} (10 pts).
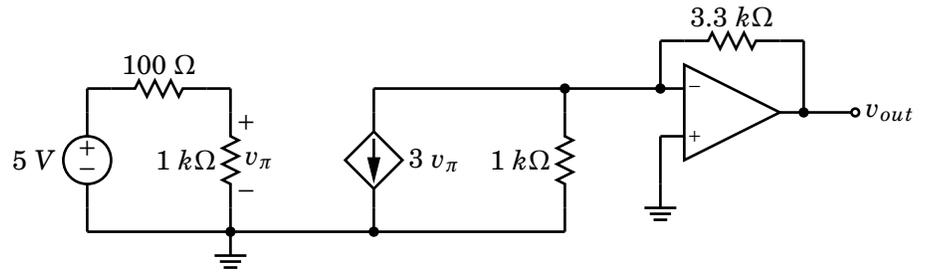
9. Find the impedance if $\omega = 1$ MHz (10 pts).
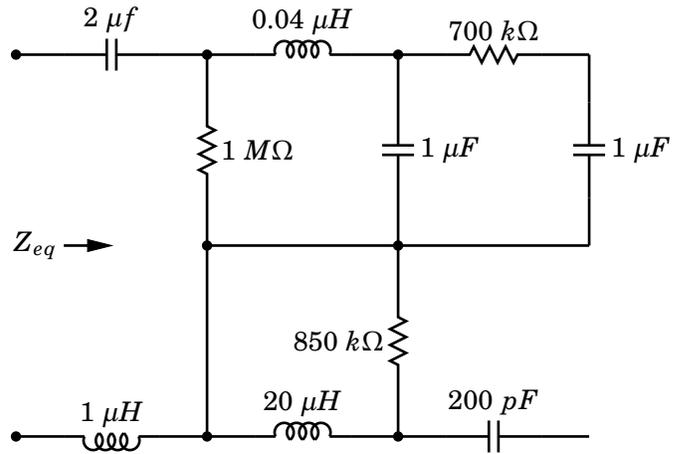
10. Find the current through the 5 Ω resistor (10 pts).

$5 \, cos(10^4 t) \, V$

$15 \, \mu F$

$1 \, \Omega$

$8 \, \Omega$

$5 \, \Omega$

$2 \, mH$

$2 \, cos(10^4 t) \, mA$

$74 \, \mu F$