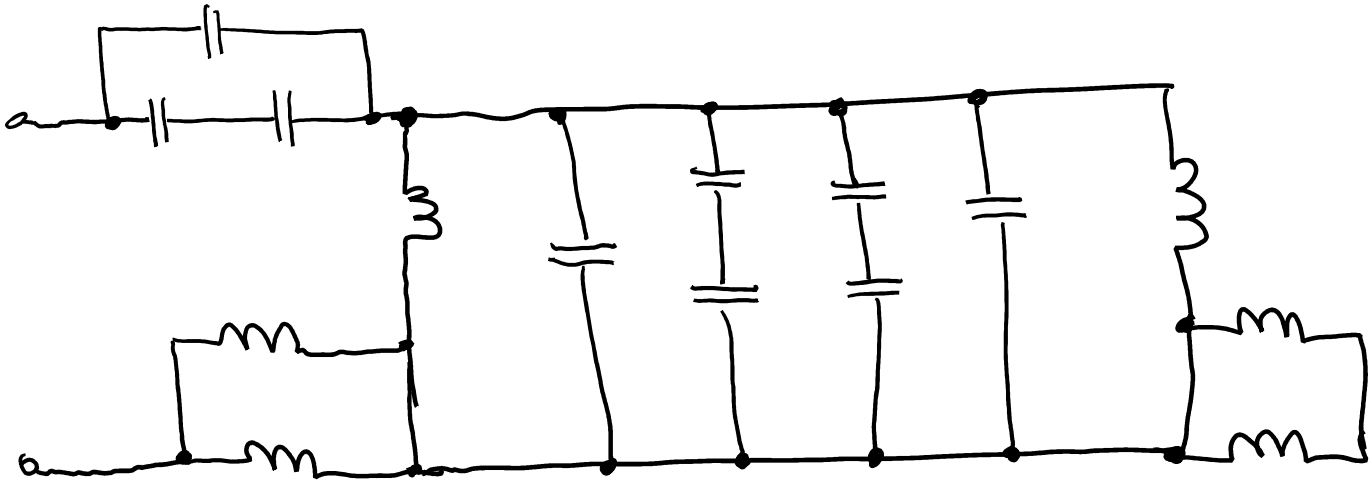
At Tutorial 4 – Marked Question (3rd May 2019)

Chapter 7, Ex 41: Equivalent capacitance/inductance

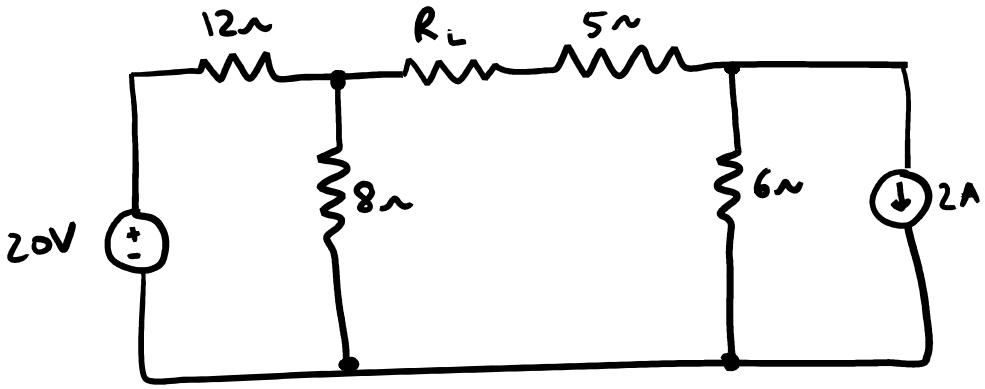
Reduce the network below to the smallest possible number of components if each inductor is 1 nH and each capacitor is 1 mF.



At Tutorial 4 – Unmarked Questions (3rd May 2019)

Ch 5 ex 61: Maximum power transfer

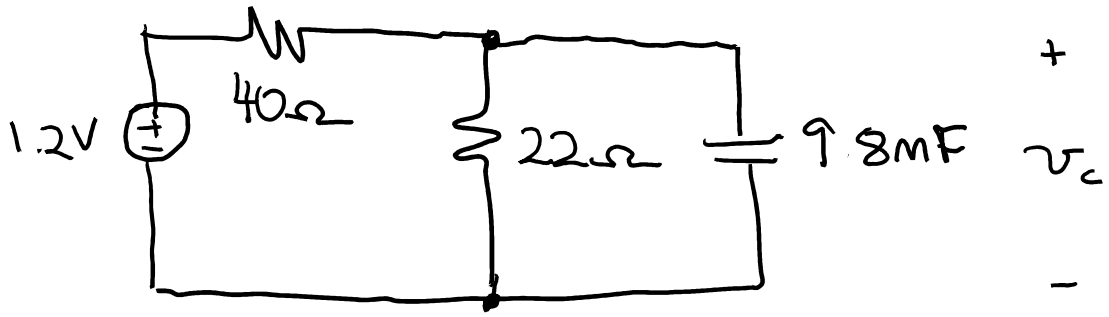
Given you can select any value of R_L, what is the maximum power that could be delivered to R_L?



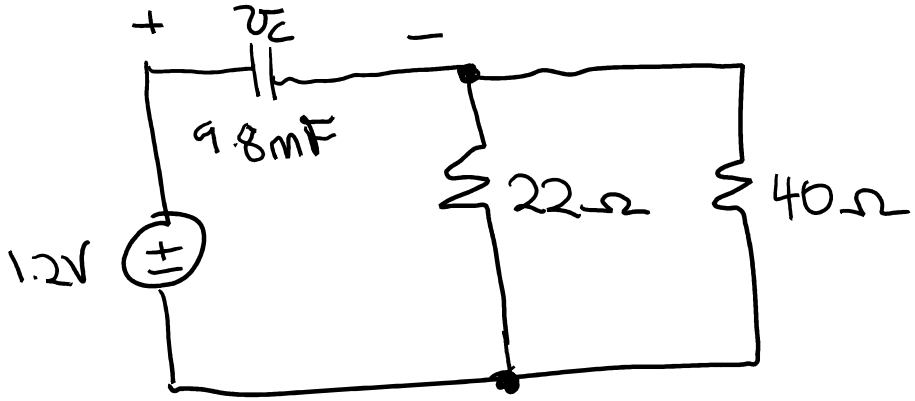
Chapter 7, Ex 14: Power

Assume the circuits below have been connected for a long time. Calculate the power dissipated in the 40 Ω resistor and the voltage labeled v_C in the circuits below:

a)



b)



Chapter 7, Ex 27: Inductors

Determine the amount of energy stored in a 33 mH inductor at t = 1 ms as a result of a current i_L given by:

a) 7 A

b) 3 - $9e^{-1\ ^3t}$ mA

Chapter 7, Ex 25: Inductors

The voltage across a 2 H inductor is given by v_L = 4.3t, -0.1 s ≤ t ≤ 50 ms. Knowing that i_L (-0.1) = 100 µA, calculate the current (assuming it is defined consistent with the passive sign convention) as t equal to:

a) 0

b) 1.5 ms

c) 45ms