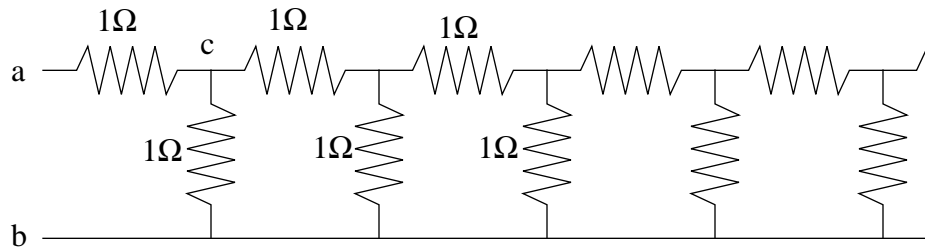# Homework #2

Due Wed at beginning of class.

Reading: Handout
Ref: Ma 5a Text, ECE 2a text

1. Consider an endless network of resistors, each 1Ω, as shown below. Find an exact expression for the resistance of the entire network from point a to b. Hint: assume the resistnace is X -- then

andd a new section in front... what will be the new resistance?

2. Find the resistance from point a to b in the following infinite network using superposition of two currents. (This can be done in your head once you see the trick...)
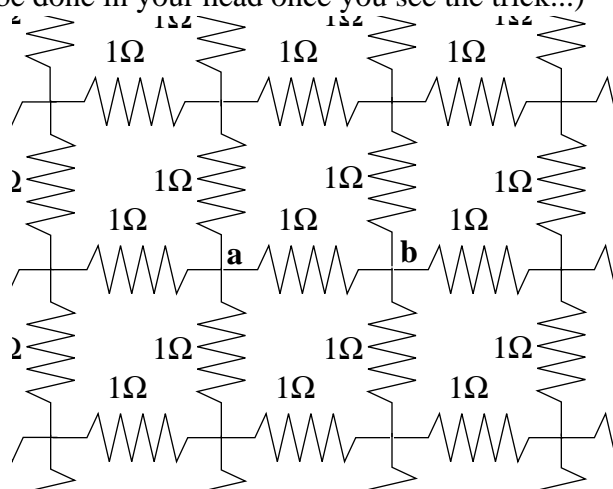
3. Find the general solution for the following equation: $xy' - 2y = x^5$

4. Find a solution for the voltage across the capacitor in the reader given that the Battery is re-placed with a new voltage supply: $V(t) = V_0(t/k)^2$ and the initial voltage across the capacitor is 0.

5. Let u be a non-zero solution of the second order differential equation:
   $y'' + P(x)y' + Q(x)y = 0$. Show that the substitution $y = uv$, converts the equation:
   $y'' + P(x)y' + Q(x)y = R(x)$ into a first order linear equation for v'.