Department Of electrical and computer Engineering

ENEE2103 CIRCUITS AND ELECTRONICS LABORATORY

Experiment No.6 Prelab

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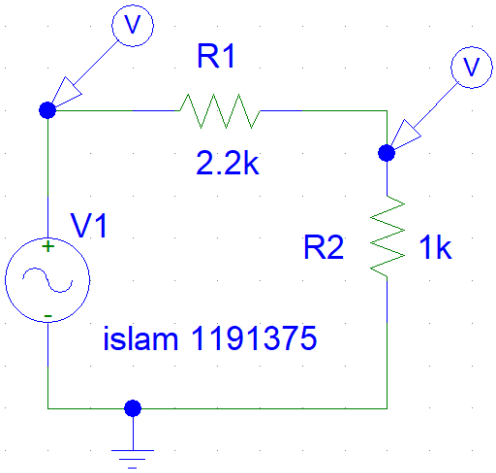
Made By: Islam Jihad

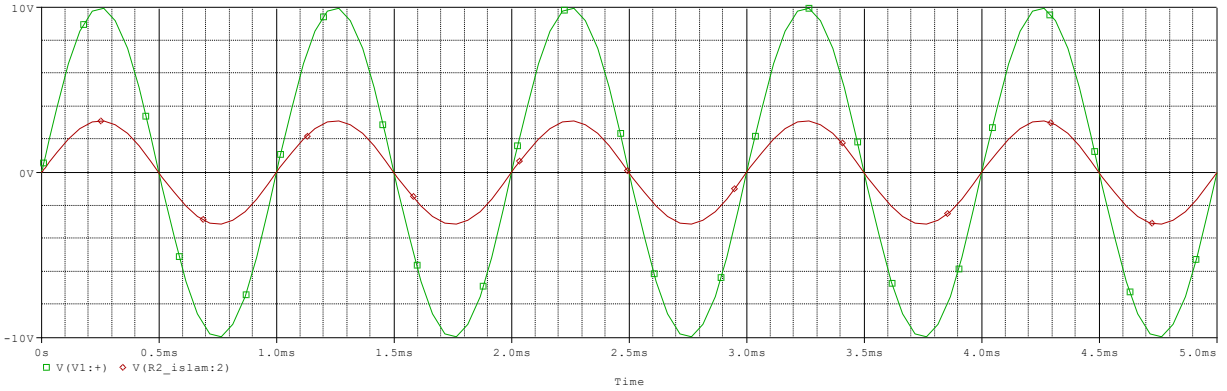
ID: 1191375

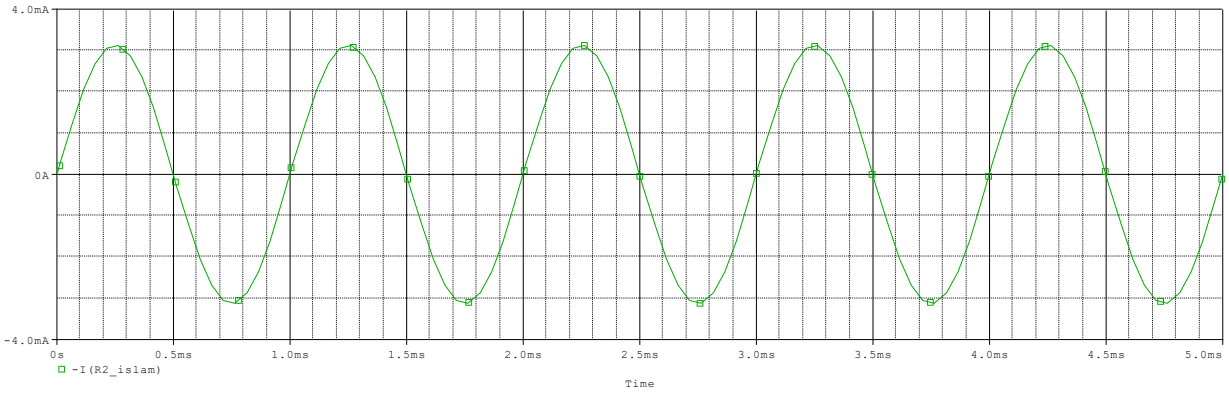
TA: MR. Ismail Abualia

Date: 28/Nov/2021

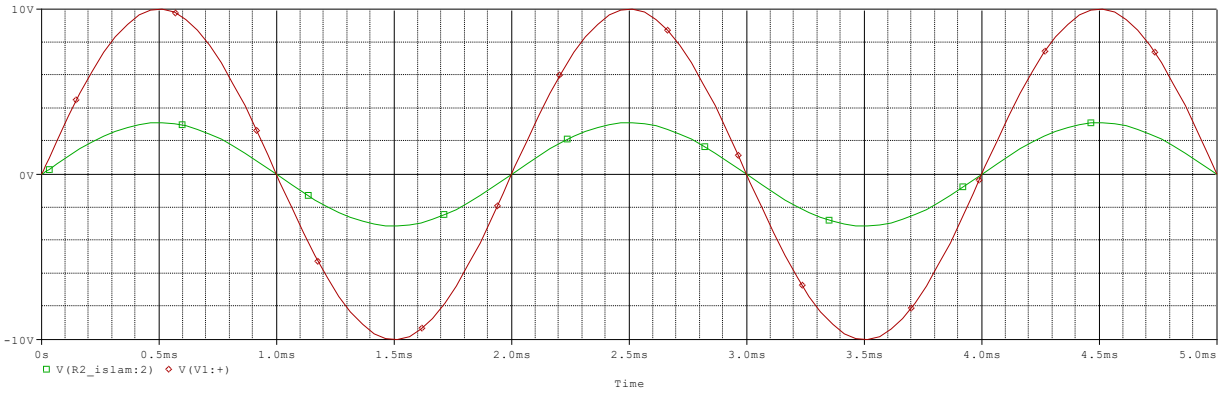
1. Part A (Impedance):
   1.1 Resistive circuit
   Frequency = 1 kHz

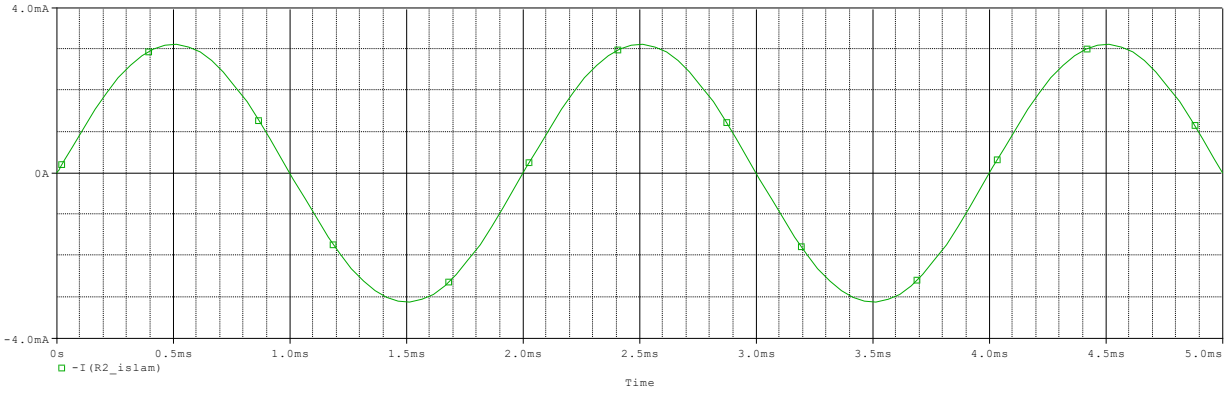




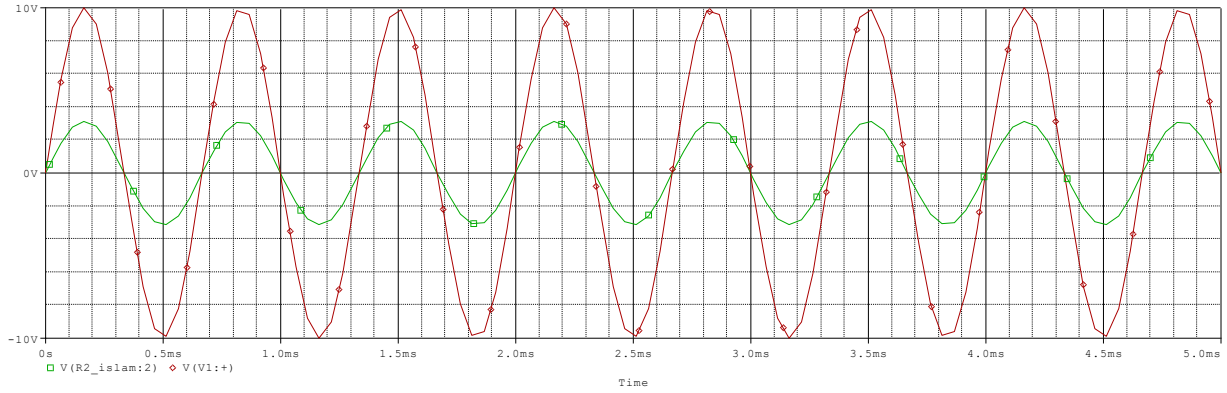


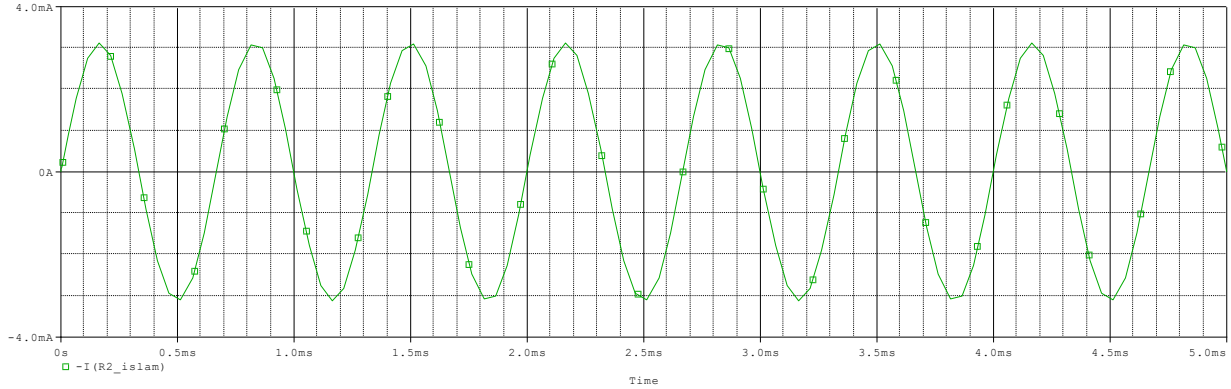
1.1.2 Frequency = 500 Hz



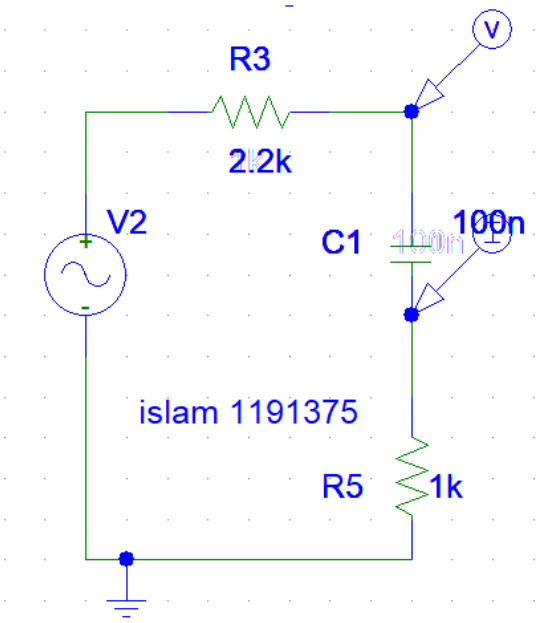


1.1.3 Frequency = 1500 Hz

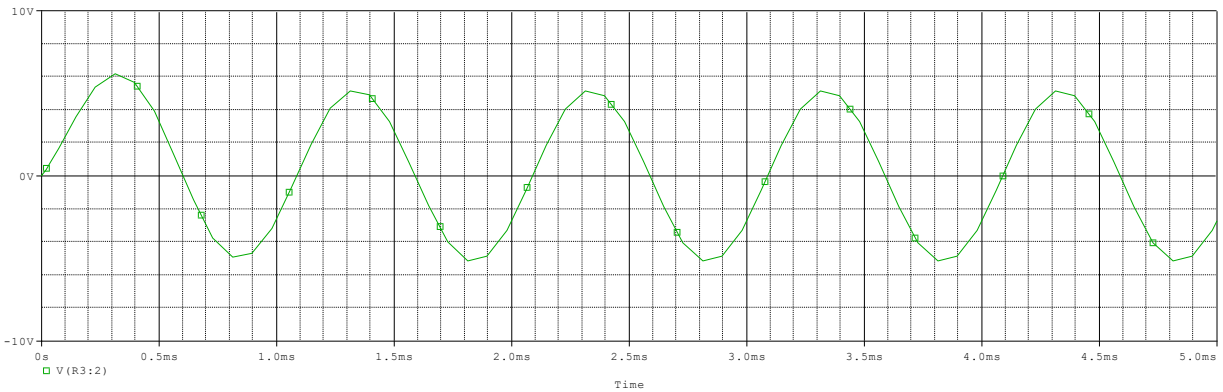


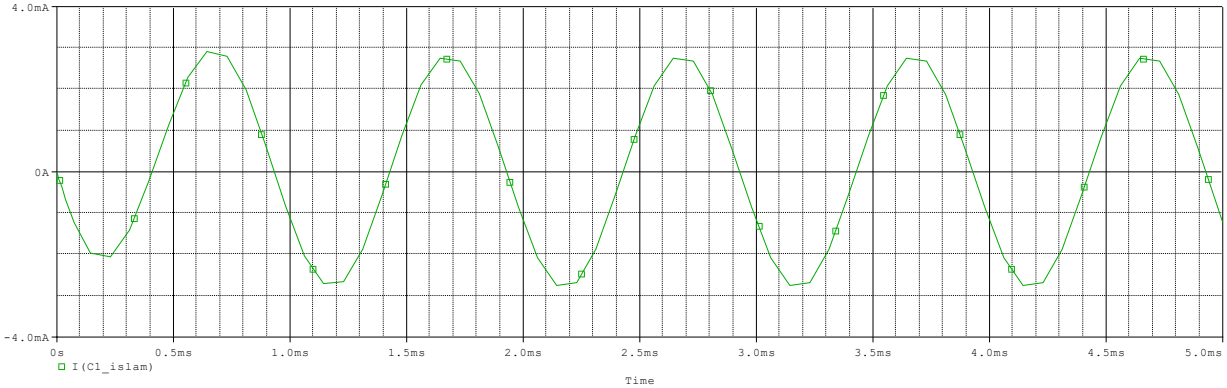


1.2 RC circuit

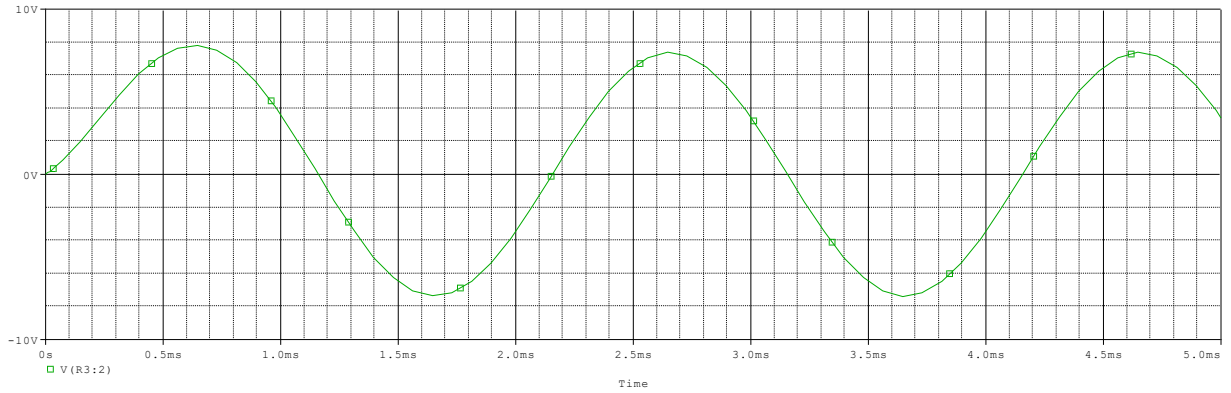


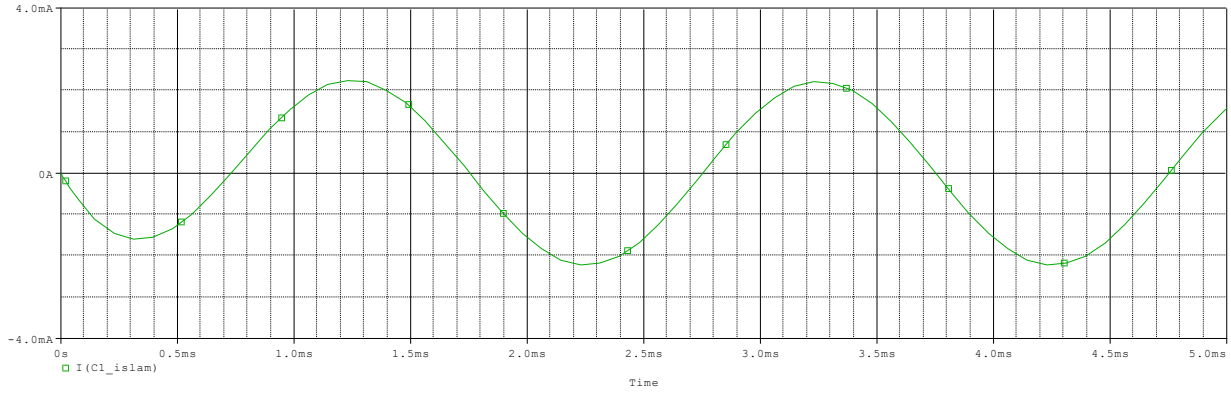
1.2.1 Frequency = 1000 Hz



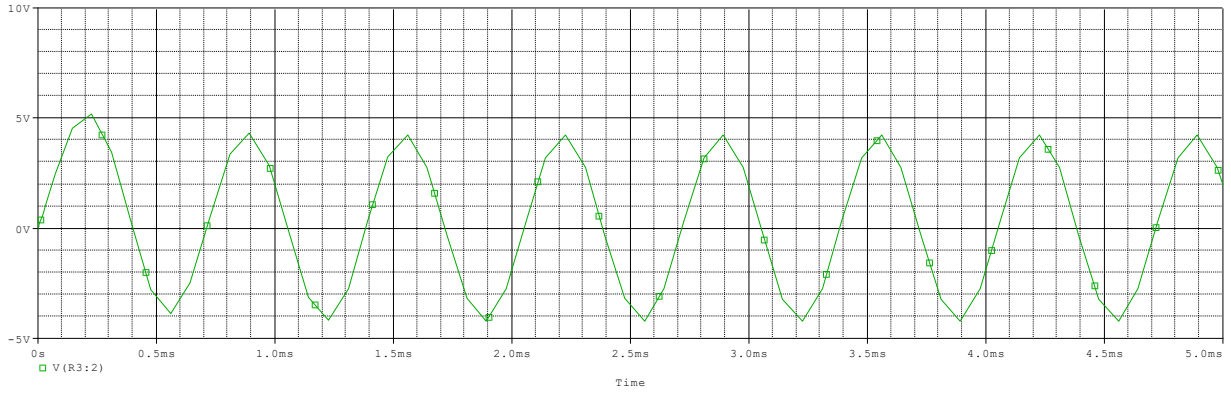


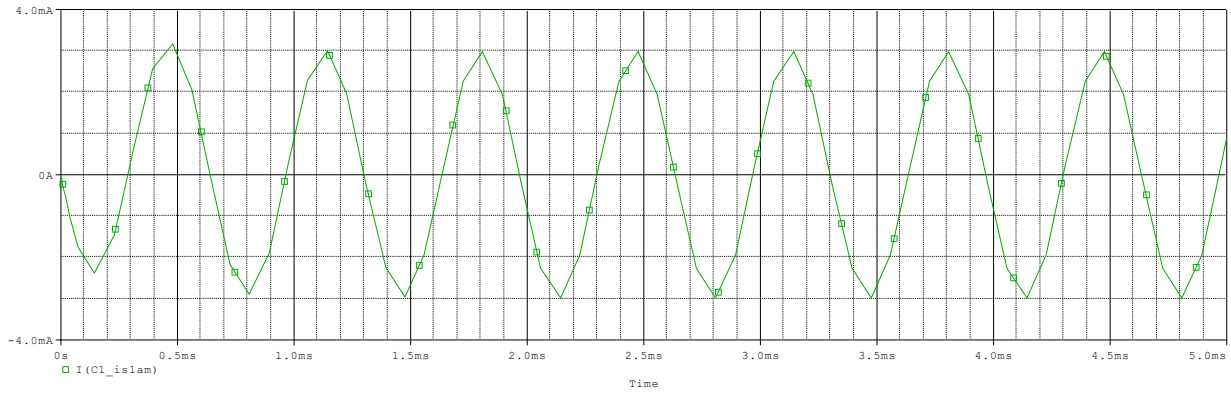
1.2.2 Frequency = 500 Hz



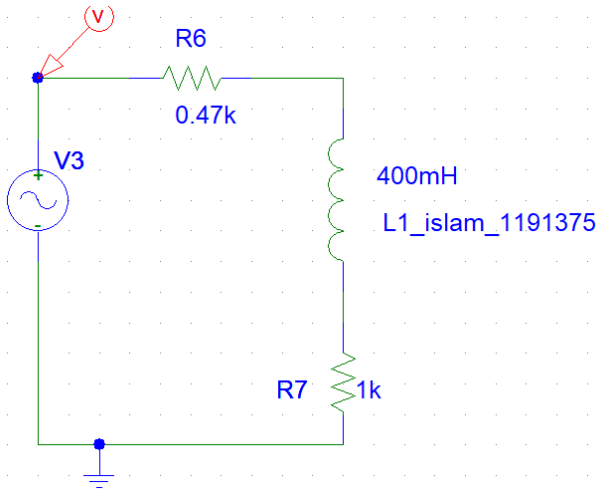


1.2.3 Frequency = 1500 Hz

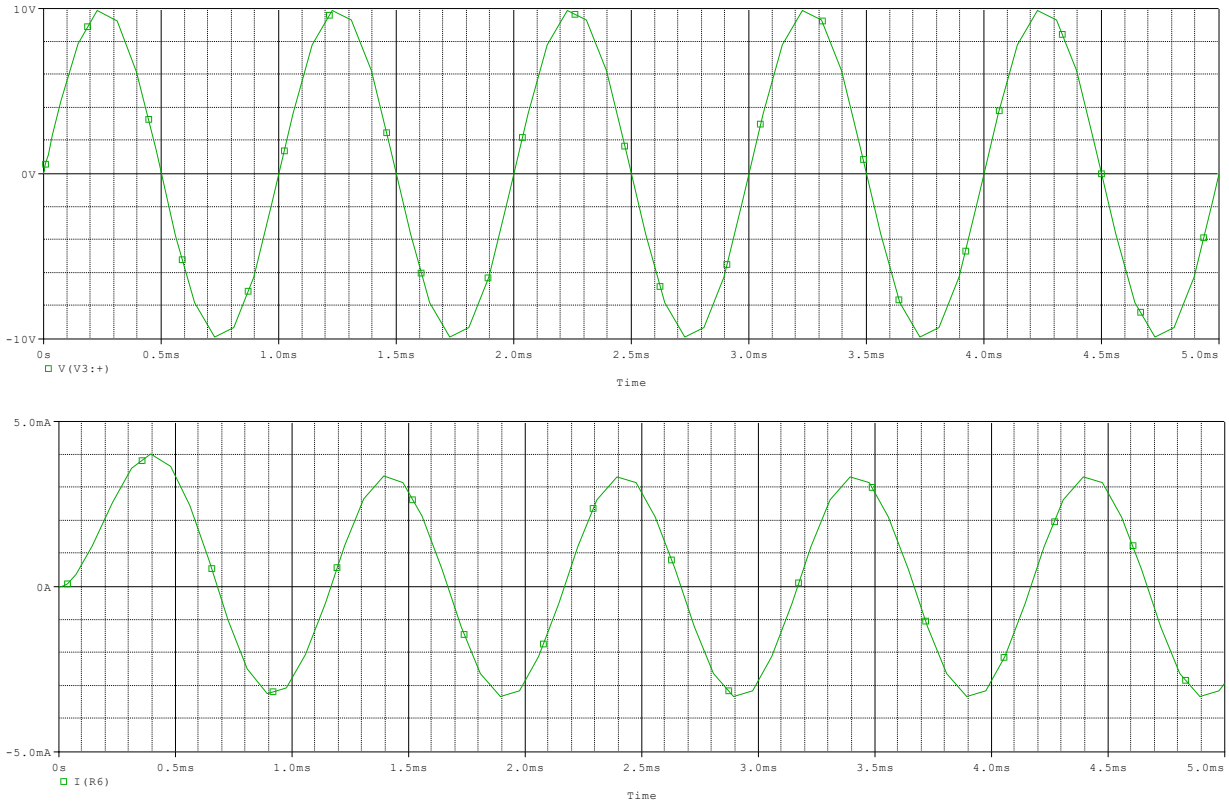




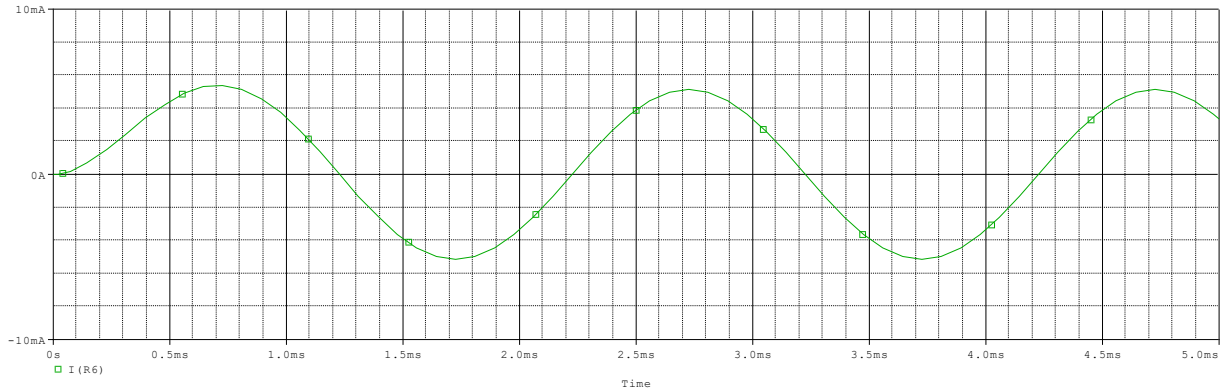
1.3 RL circuit

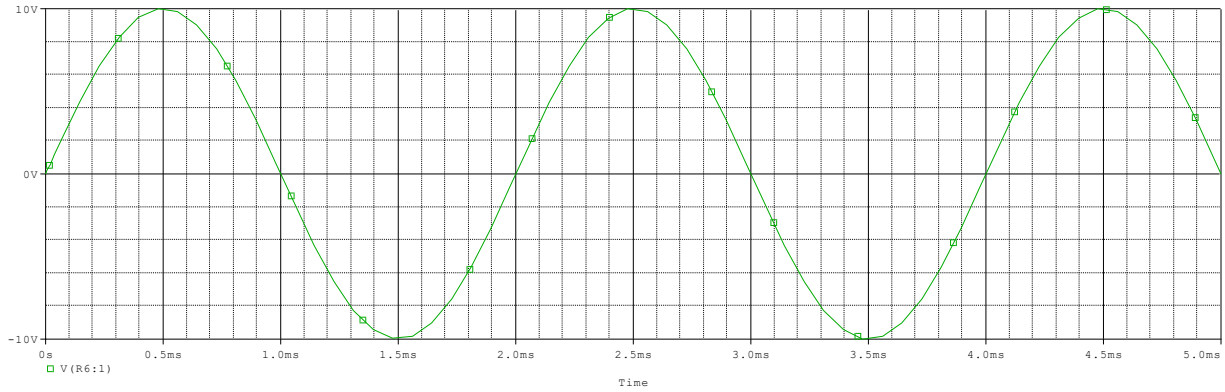


1.3.1 Frequency = 1000 Hz

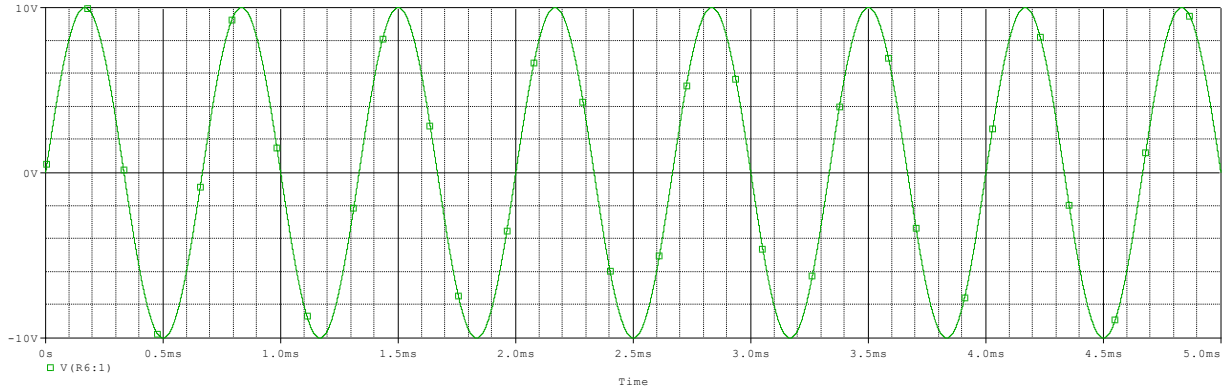


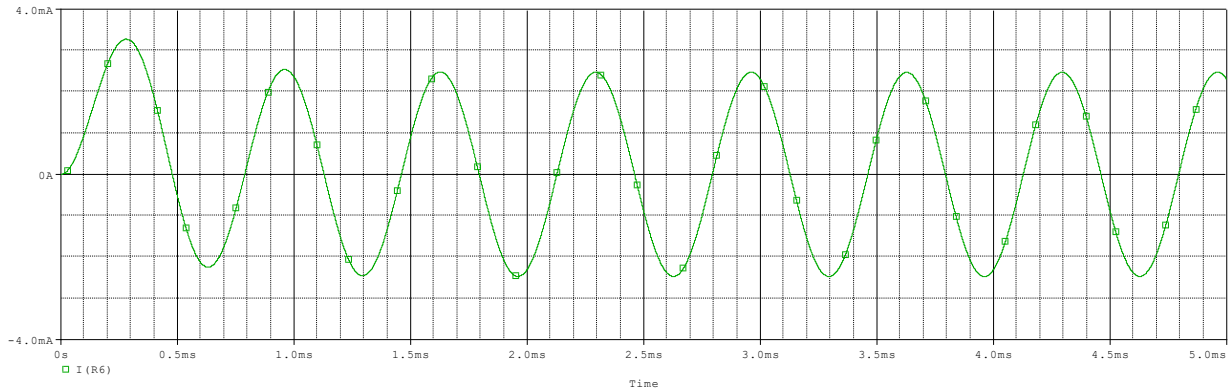
1.3.2 Frequency = 500 Hz



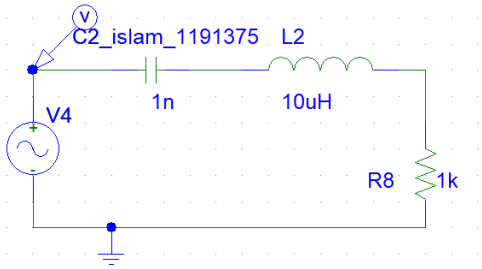


1.3.3 Frequency = 1500 Hz

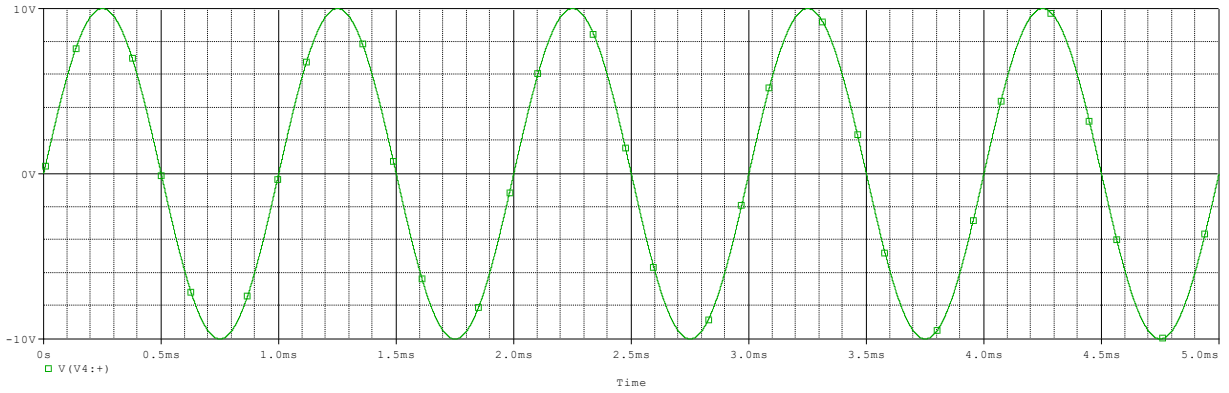


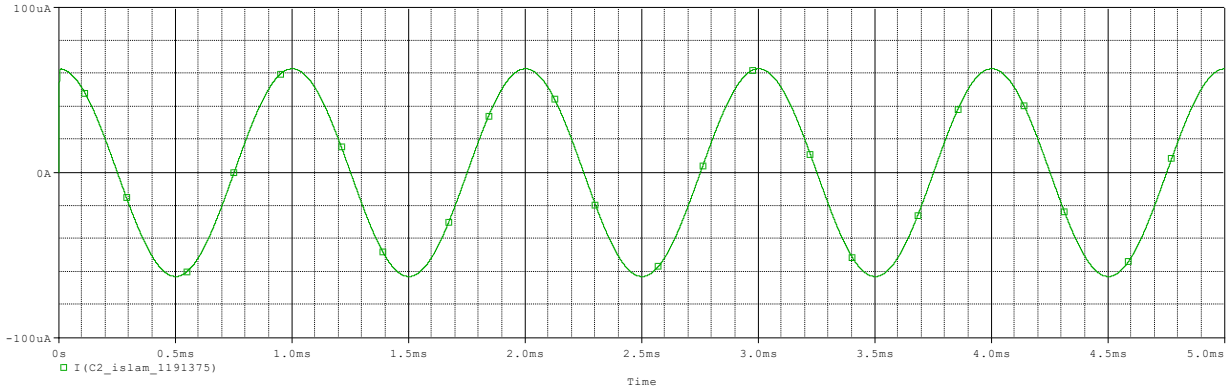


1.4 Capacitive and inductive behavior



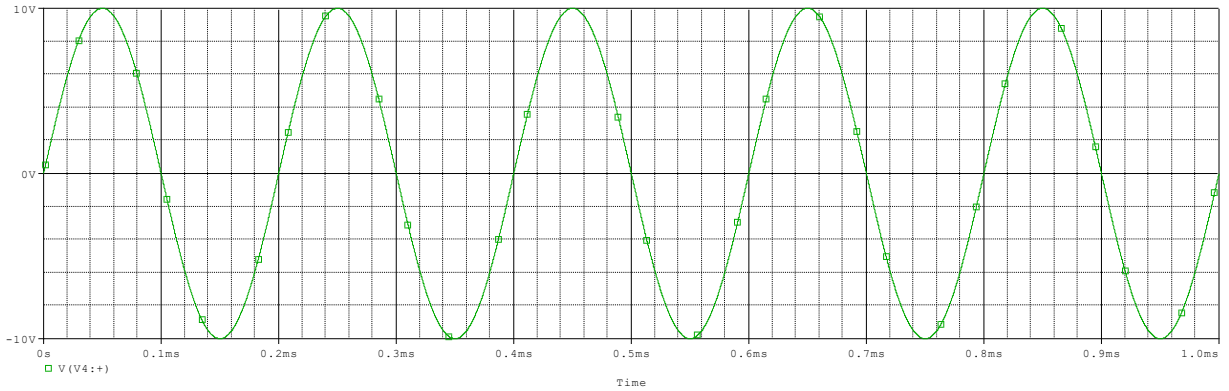
F=1KHZ

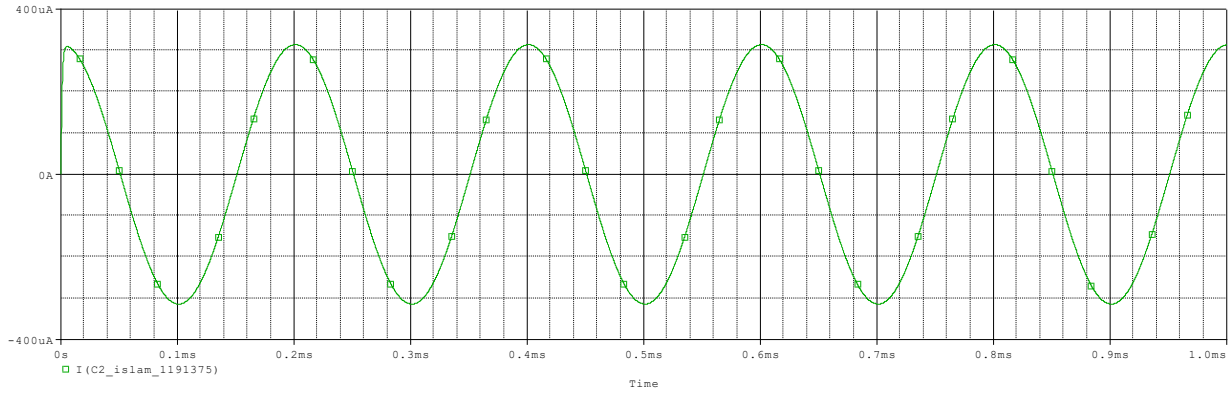




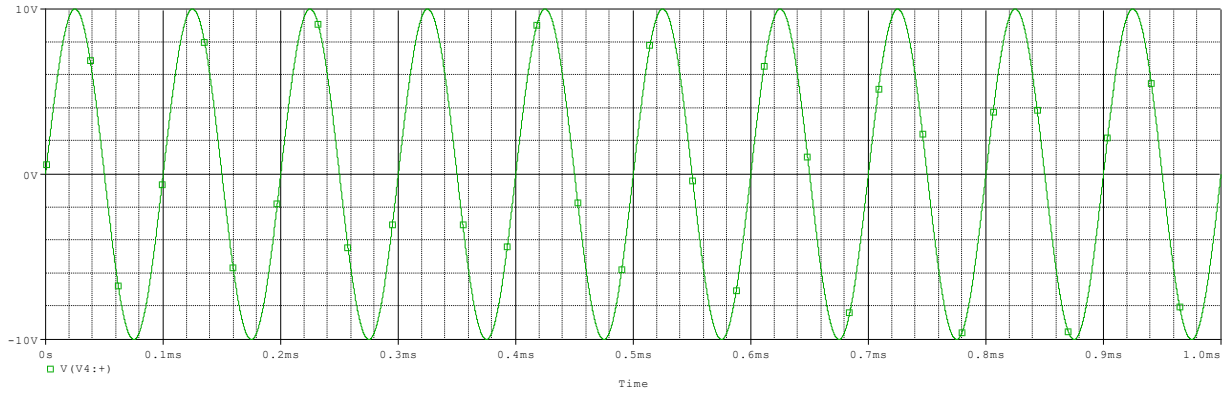
F = Fo (Resonance Frequency):

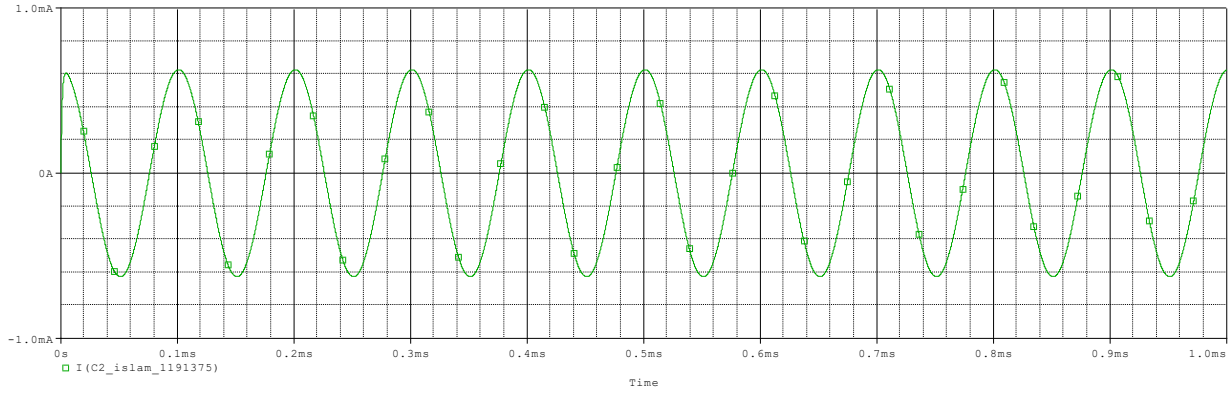
5033



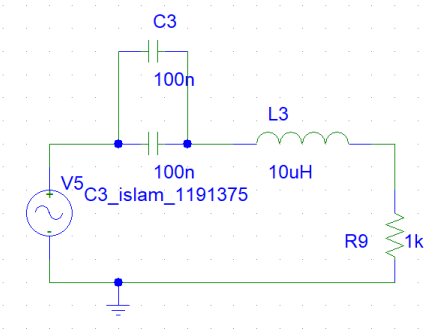


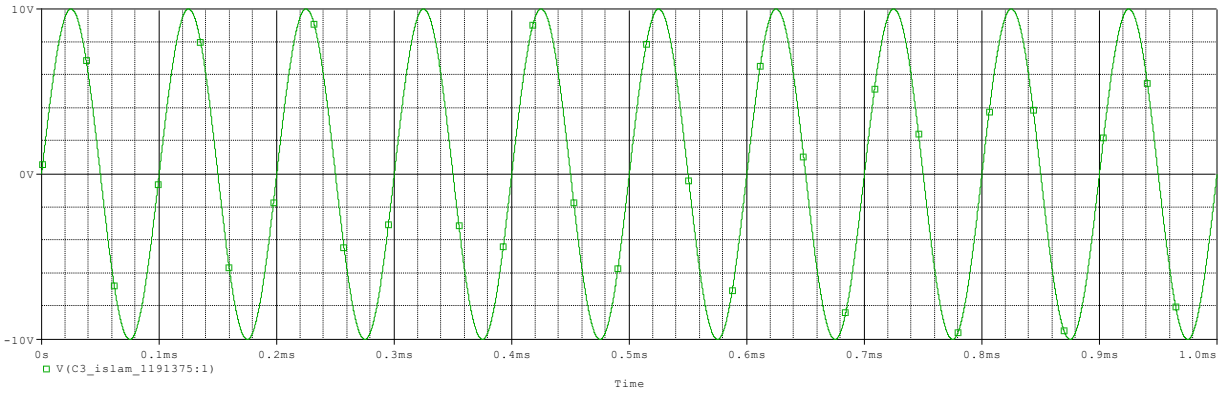
F = 2Fo

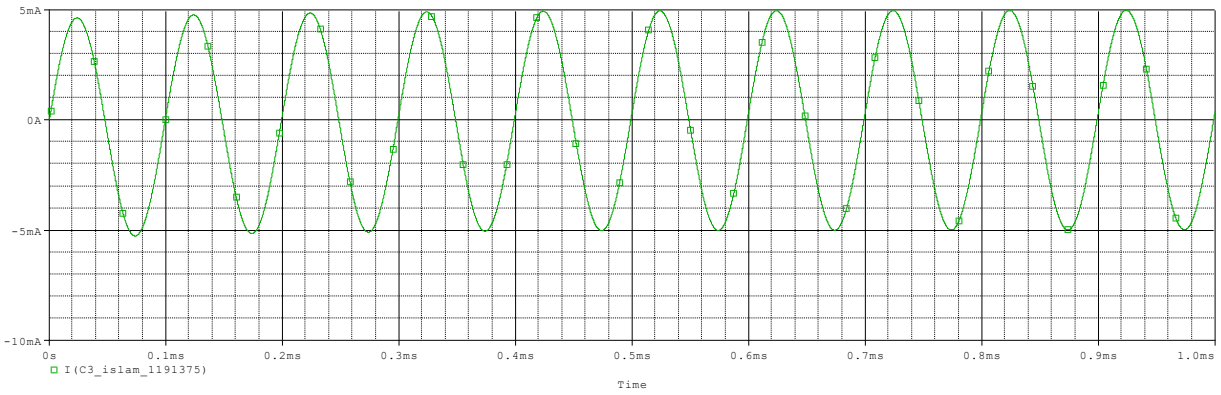




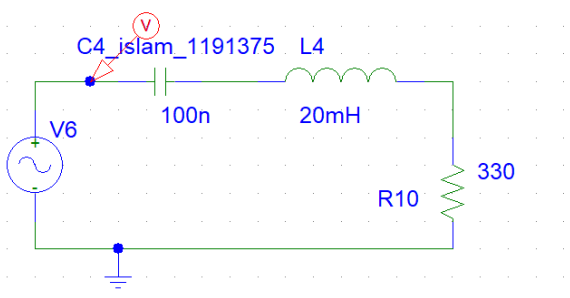
1.4.1 Double the value of the capacitor:

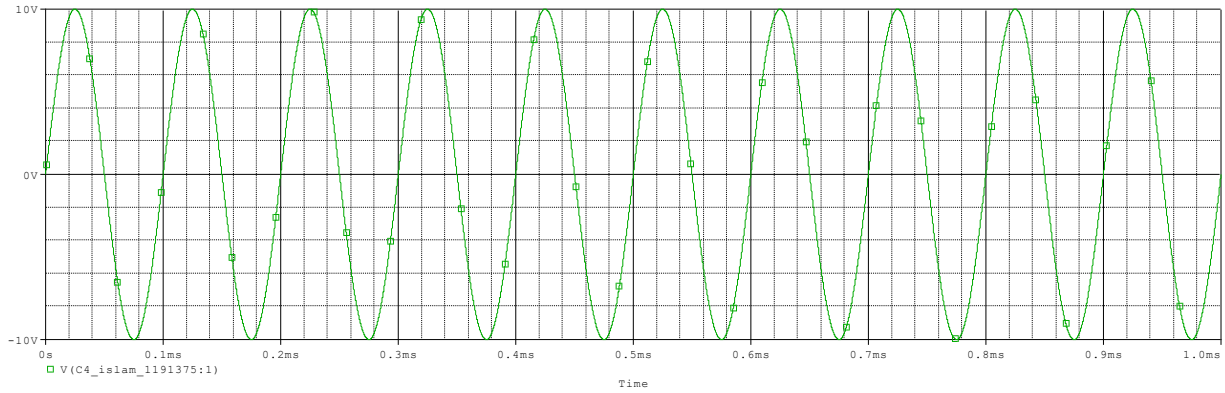


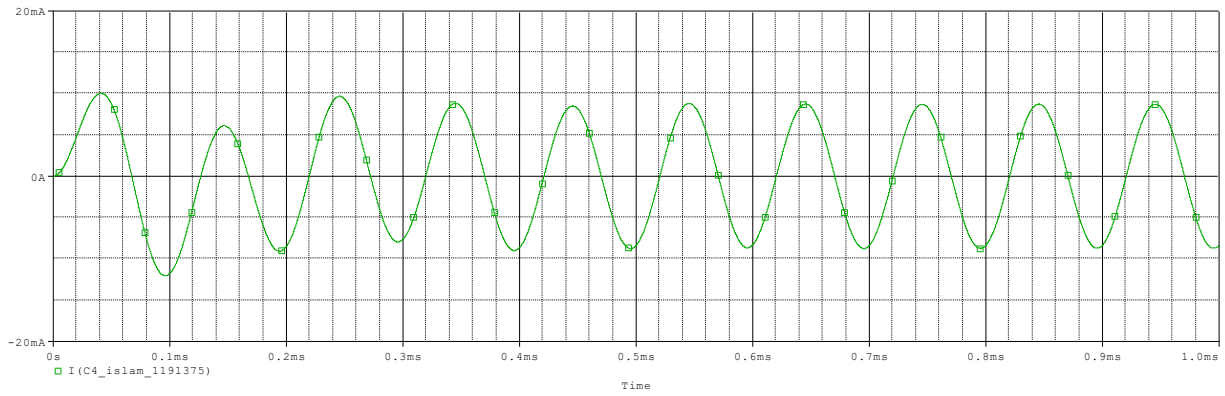




1.4.2 Double the value of the inductor

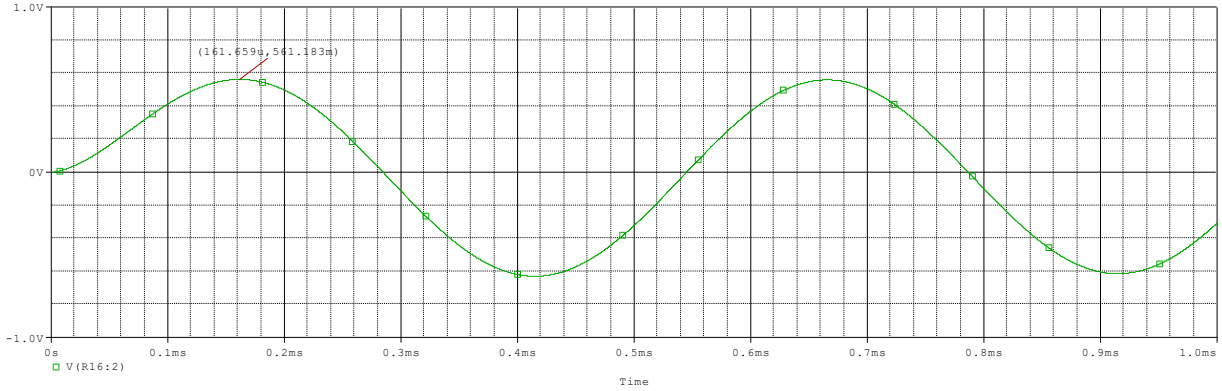


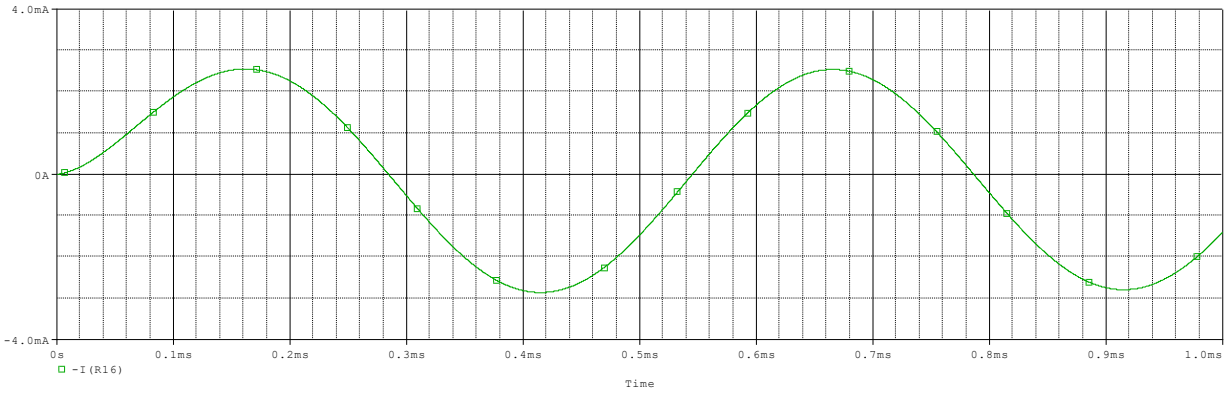




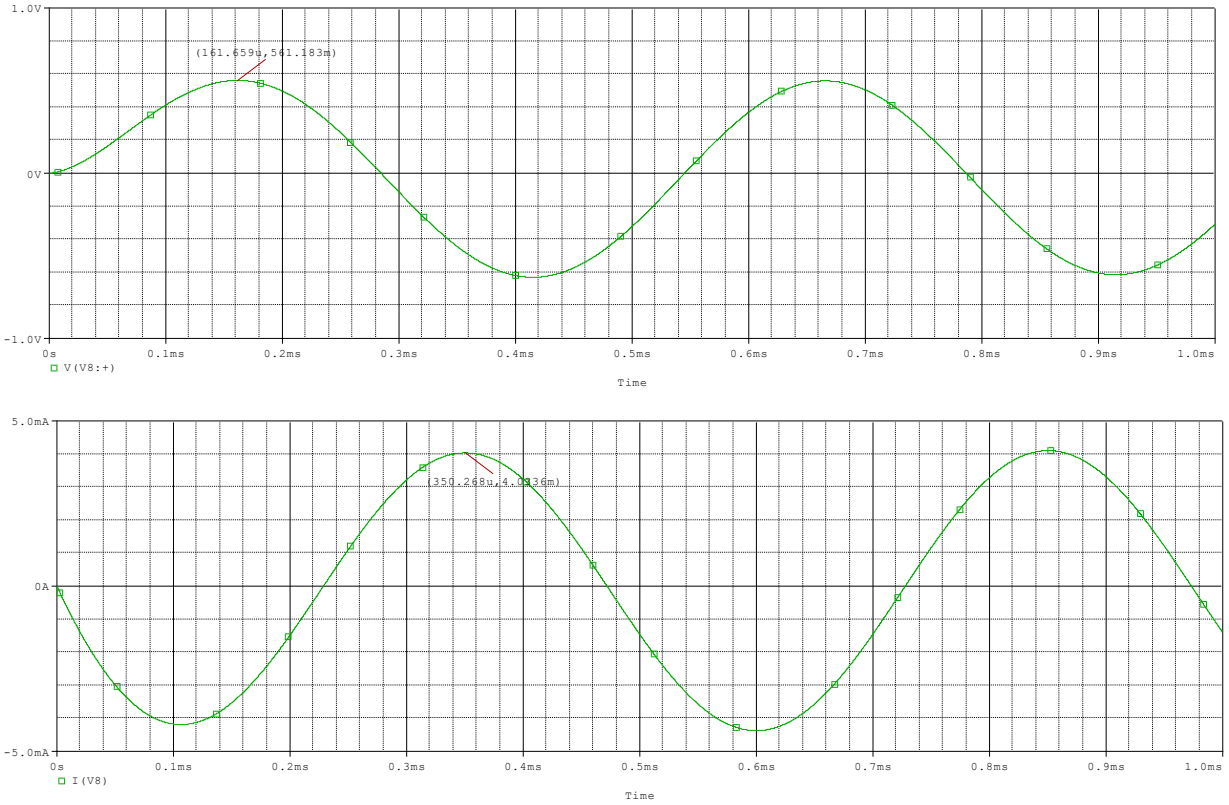
1.5 Sinusoidal steady state power

Plot the voltage and current across R2



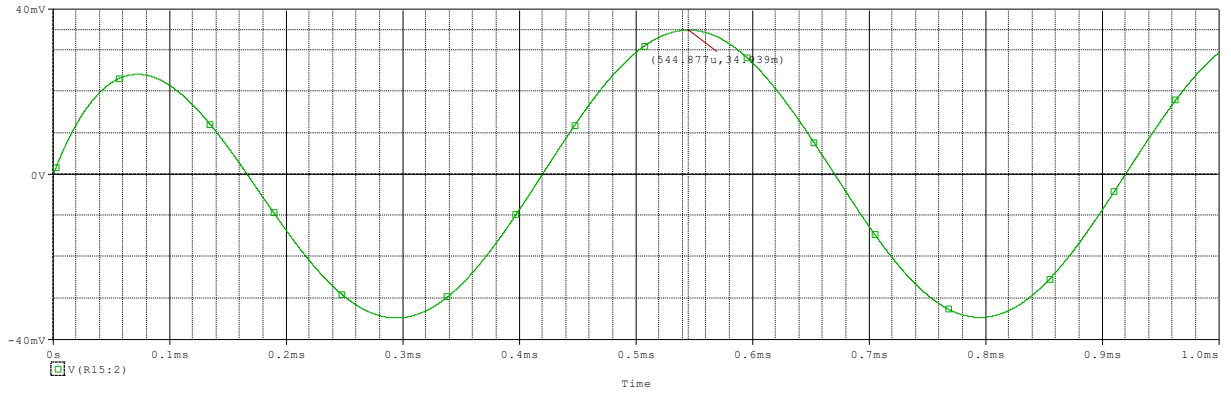


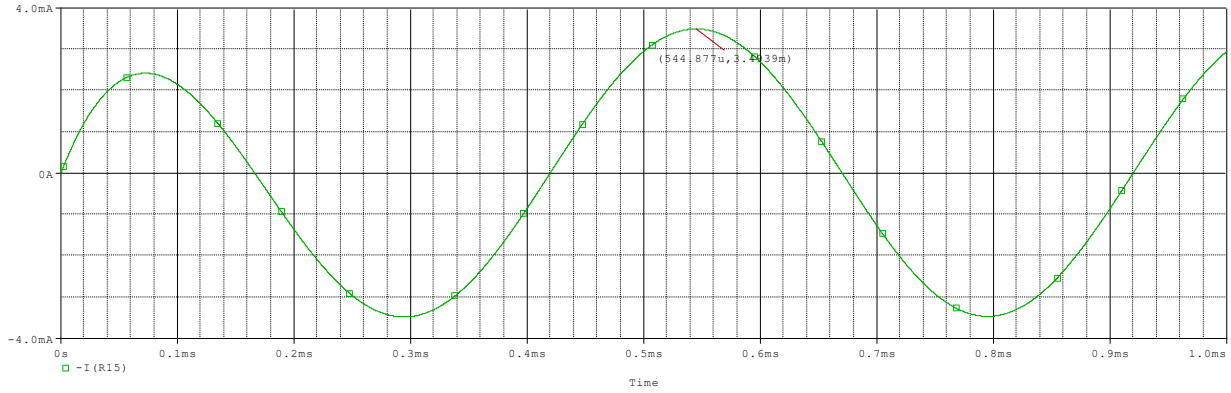
Plot Vs and Is and measure phase shift



Phase shift= 350.2u-161.6u=188.6u *360 /0.5= 33948

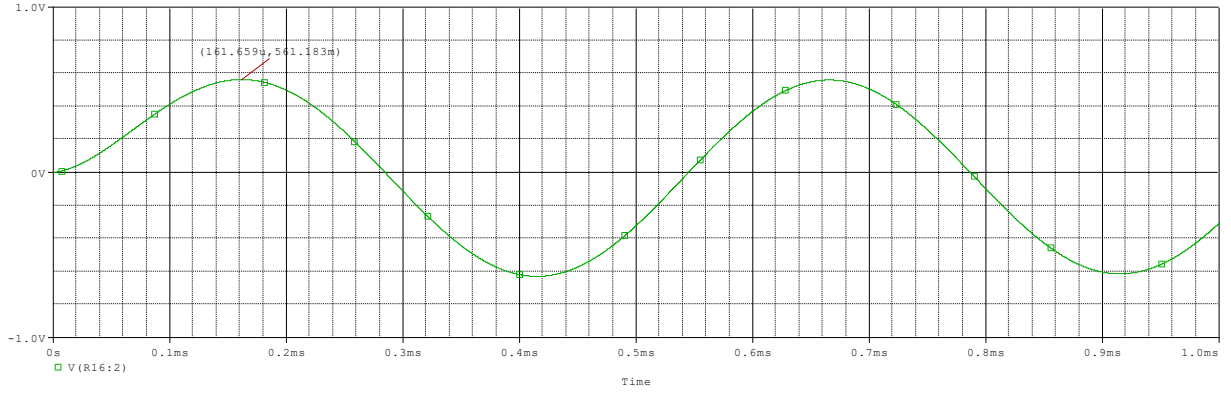
Plot Vc and Ic and measure phase shift

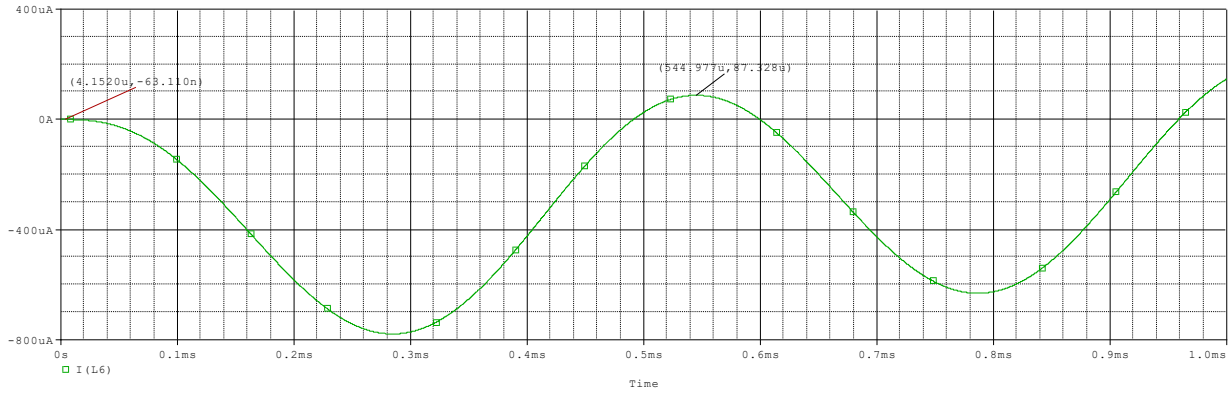




Phase shift= zero as the change in time is zero

Plot VL and IL and measure phase shift



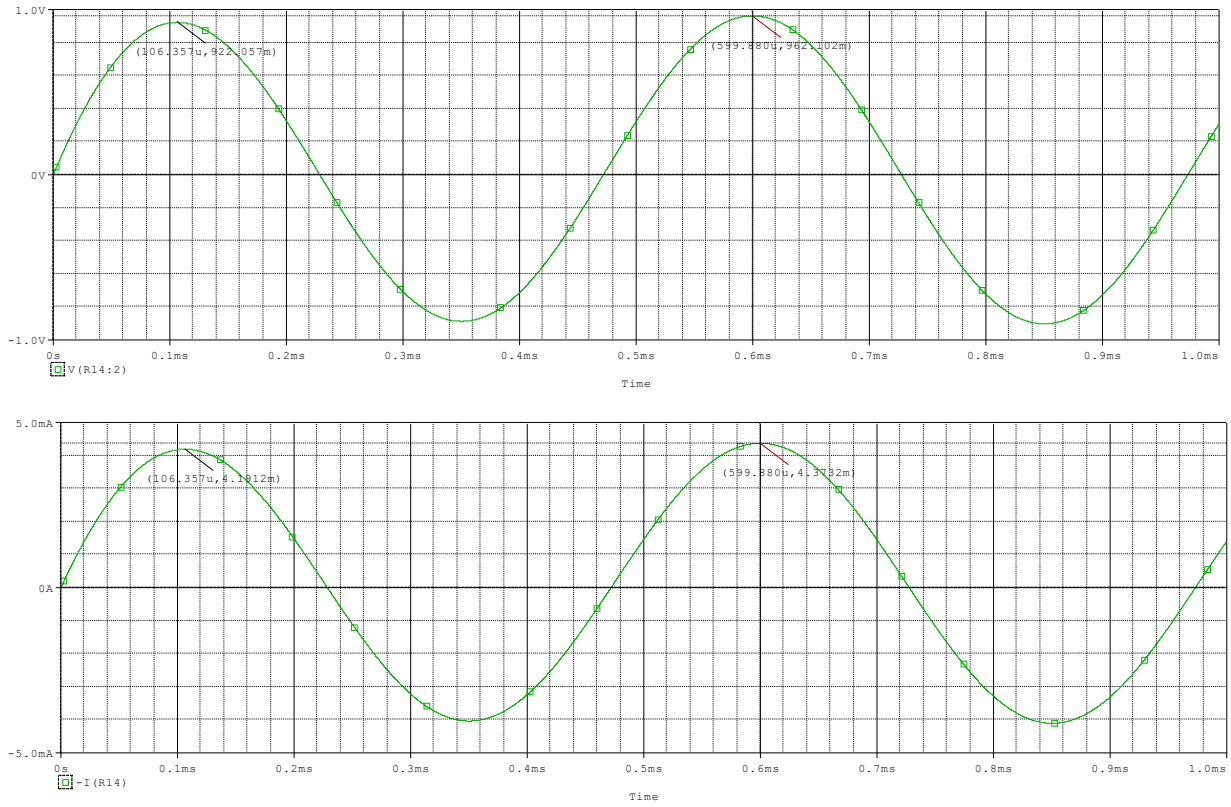


Phase shift=(161.65-4.152)*360/0.5

=157.498*360/0.5= 113,398.56

Must be= 87

Plot voltage across R1 and Is and measure phase shift



Phase shift is almost zero