

**Date:** 2/6/21

## **Experiment no. 8**

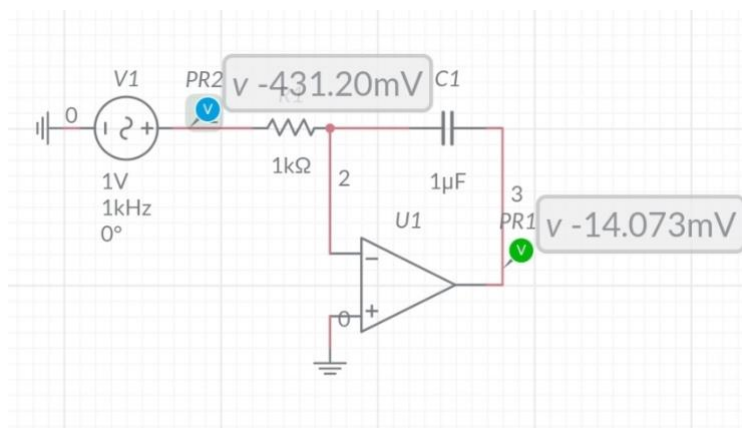
**Objective:** Design and analysis of Integrator and Differentiator using operational amplifier

**Software used:** Multisim Live

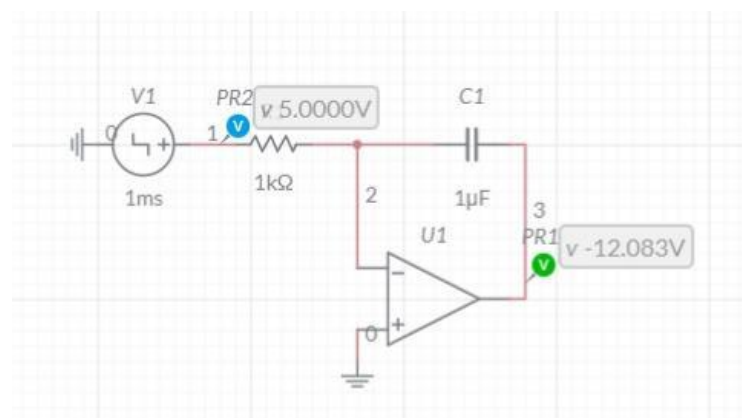
**Theory:** A Differentiator is an electronic circuit that produces an output equal to the first derivative of its input. An Integrator is an electronic circuit that produces an output that is the integration of the applied input.

### **Circuit diagram:**

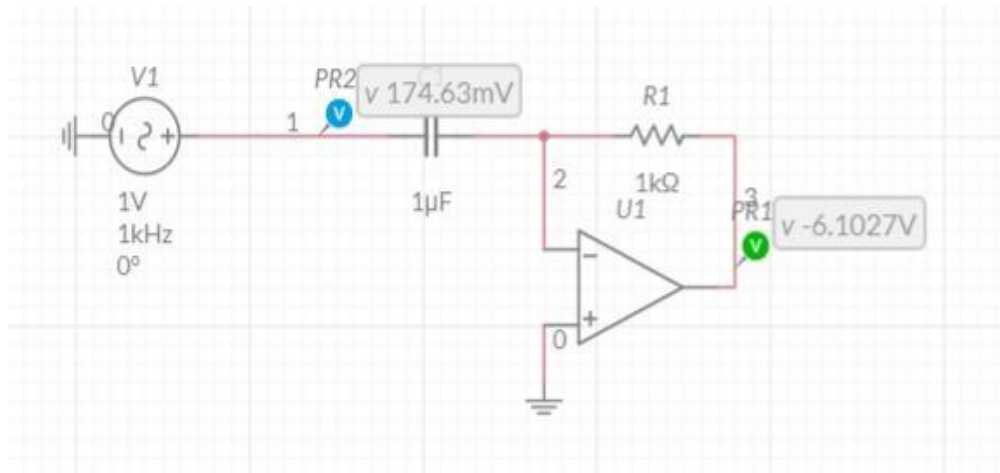
#### **1.Integrator circuit with AC voltage**



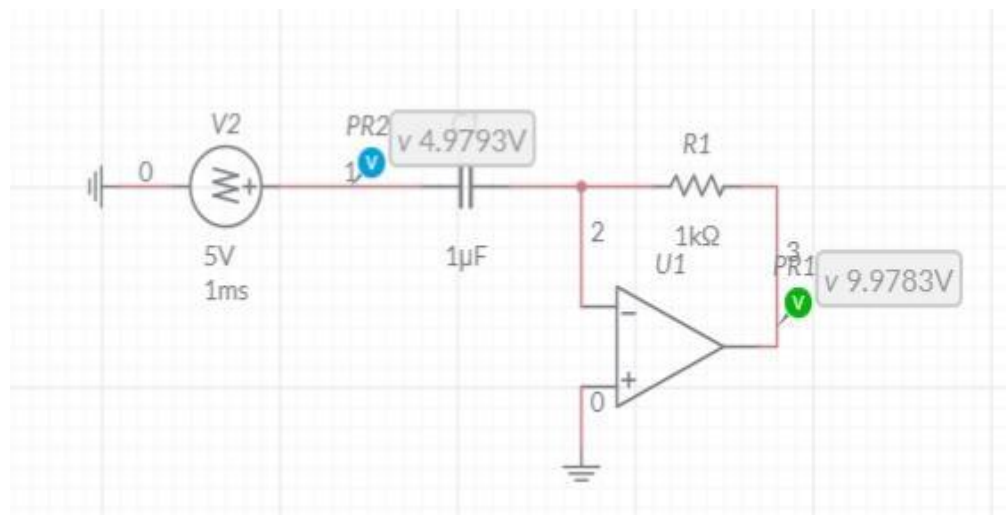
#### **2.Integrator circuit with step voltage**



### 3. Differentiator circuit with AC voltage



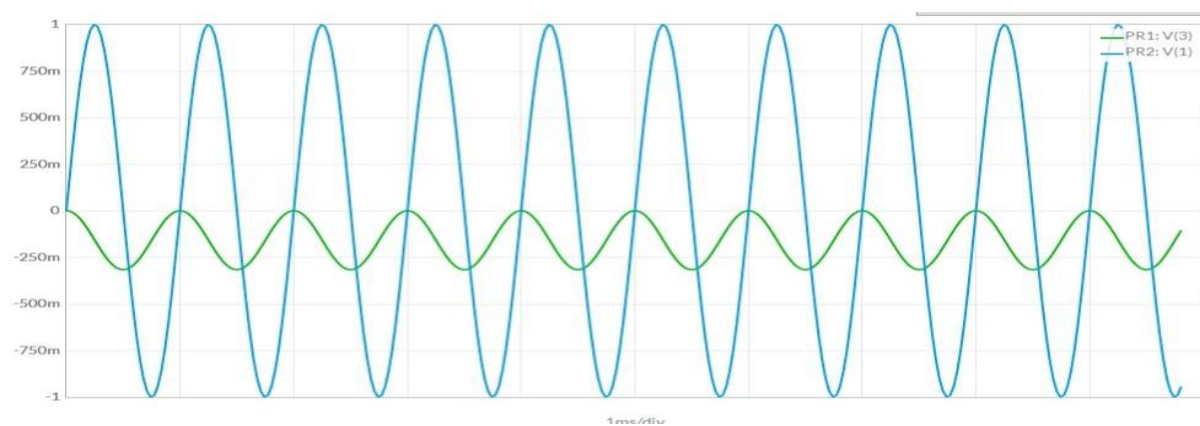
### 4. Differentiator circuit with Triangular voltage



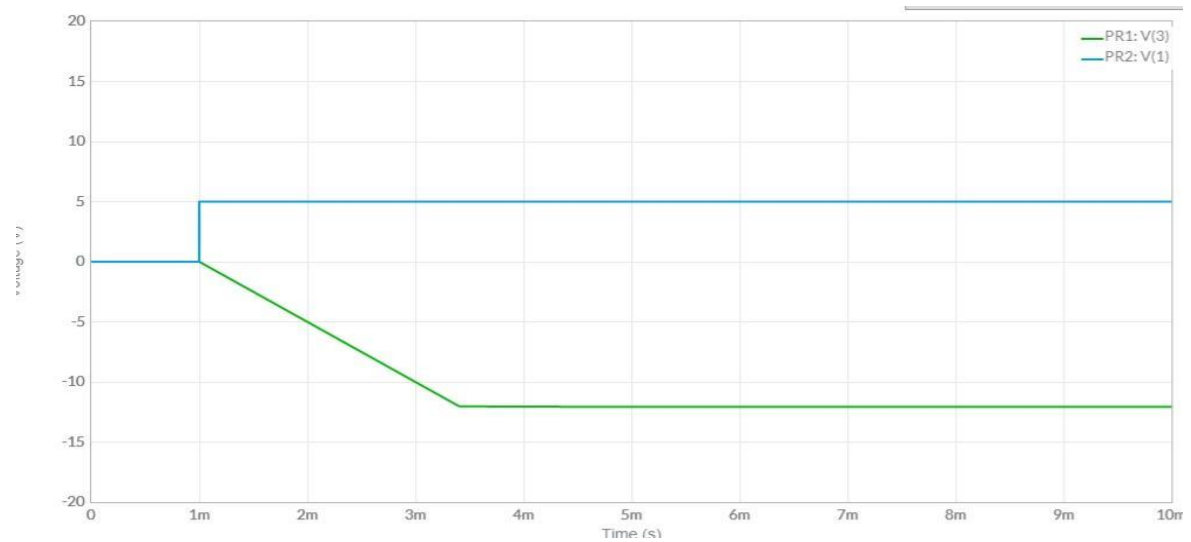
**Results & observations:**

**Observations:**

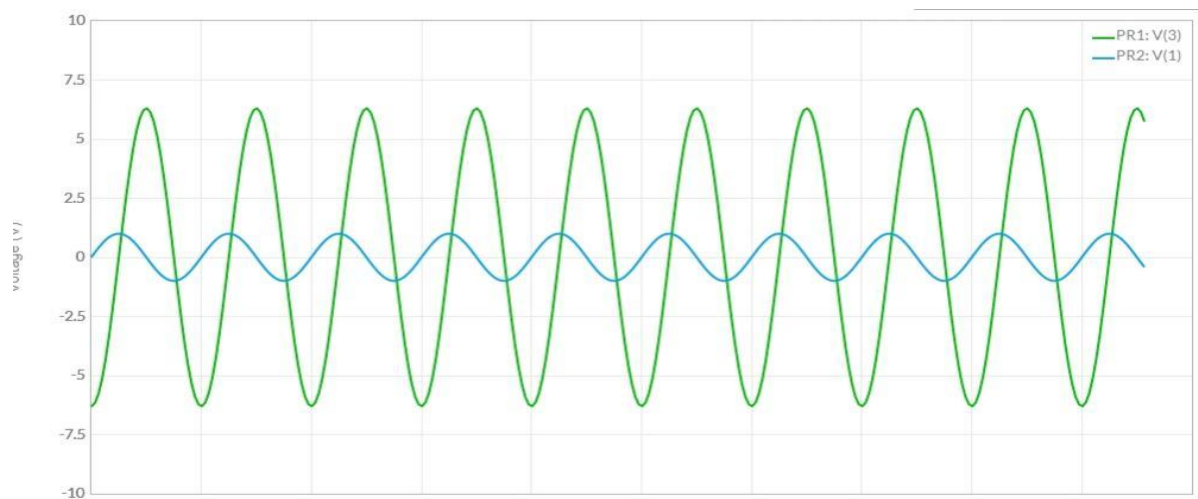
#### 1. Integrator circuit with AC voltage



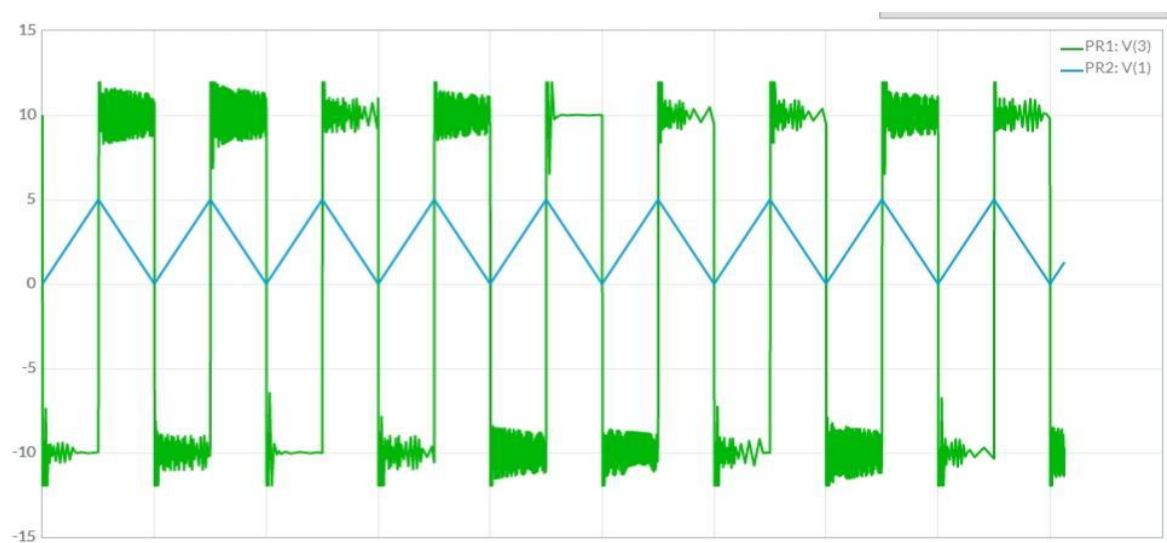
## 2. Integrator circuit with step voltage



## 3. Differentiator circuit with AC voltage



## 4. Differentiator circuit with Triangular voltage



**Result:** By above circuits and graphs we can analyse the design of Integrator and Differentiator using operational amplifier