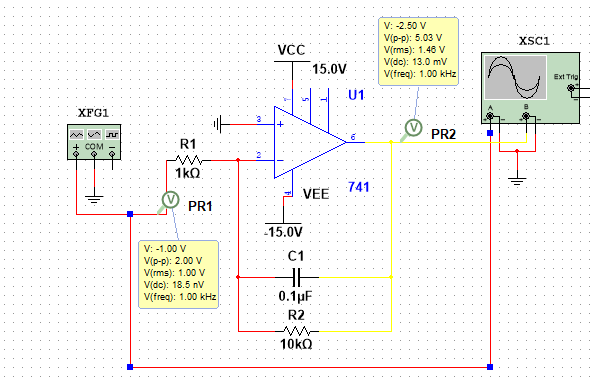
**Analog IC**

**Lab 2**

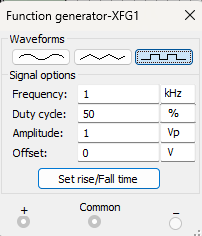
|  |  |
| --- | --- |
| Name | ID |
| Nada Tarek Mowafi | 20012094 |
| Salma Hamdy Mohammed | 20010677 |

**The Characteristics of Integrators and Differentiators Circuits:**

* Integrator:
* The circuit:

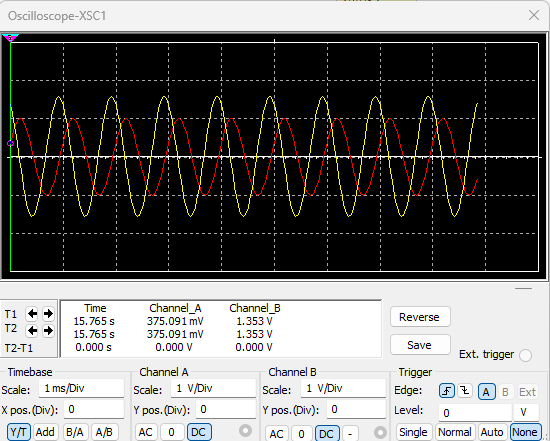


Function generator settings for all:

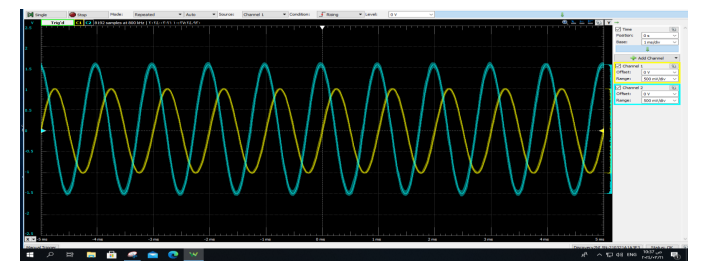


1. **Sinusoidal wave input:**

* **Output from multisim:**

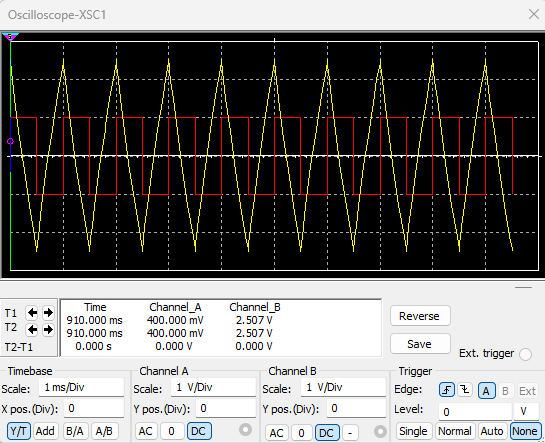
****

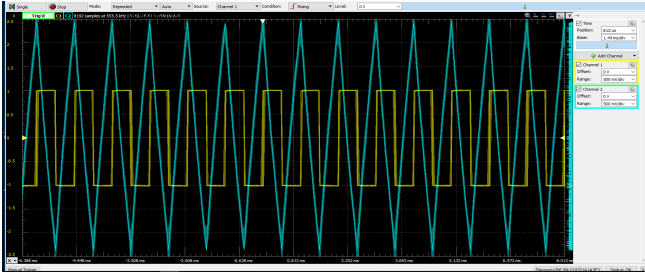
* **Output in the lab:**



1. **Square wave input:**

* **Output from multisim:**

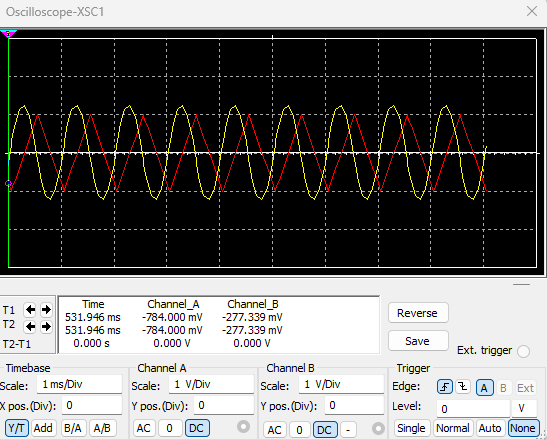
****

* **Output in the lab:**

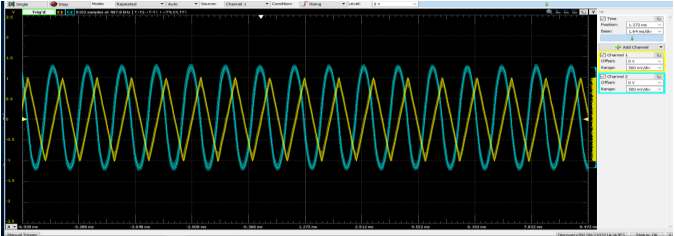
Comment: If the square wave is applied to Integrator Amplifier, the produced output will be a triangular wave or saw tooth wave as the op-amp integrator produces an output voltage which is proportional to the integral of the input voltage.

1. **Triangular wave input:**

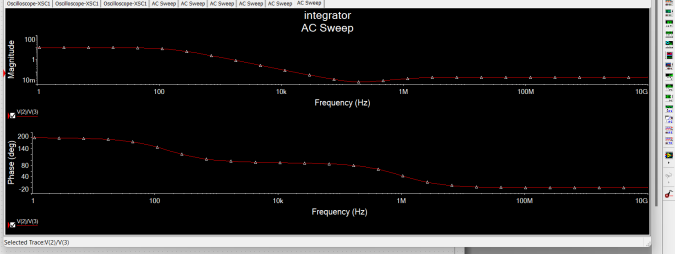
* **Output from multisim:**

****

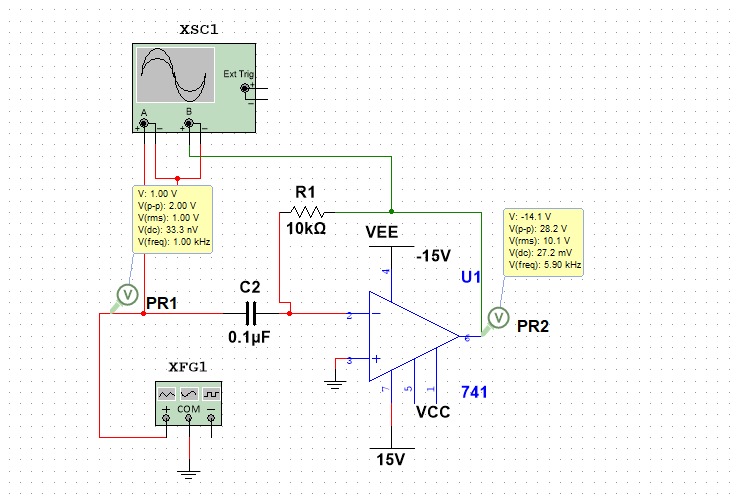
* **Output in the lab:**

****

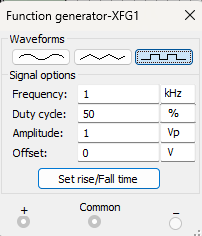
* **The frequency response:**

****

* **The differentiator circuit:**

****

* Function generator settings for all:

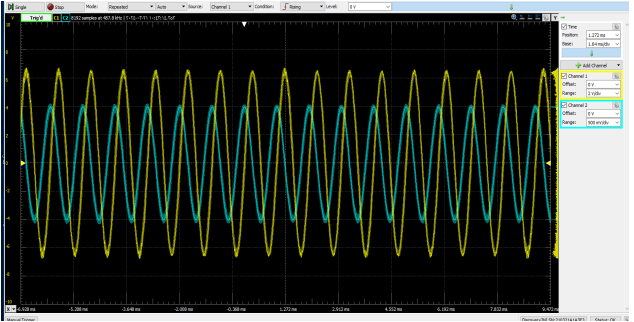
****

1. **Sinusoidal wave input:**

**Output from multisim:**

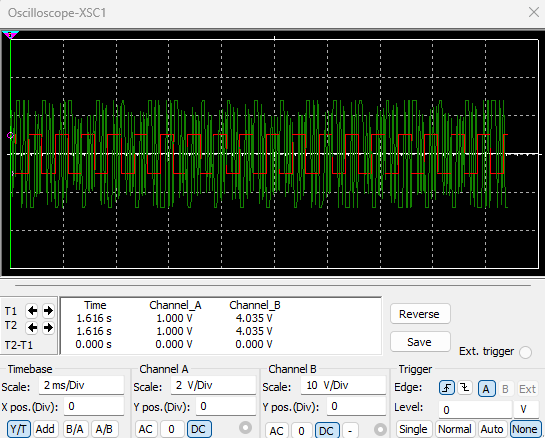
****

**Output in the lab:**

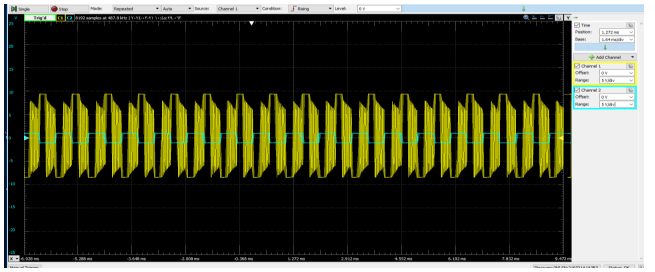
****

1. **Square wave input:**

**Output from multisim:**

****

**Output in the lab:**

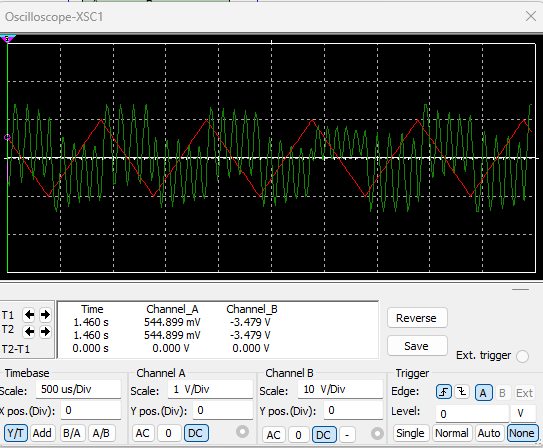
****

Comment:

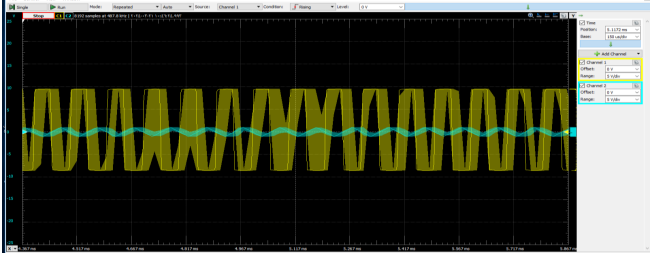
If a rectangular wave is applied to a differentiator amplifier, the output will be a series of pulses. And if a square wave is applied, the output will be delta as the op-amp differentiator produces an output voltage which is proportional to the rate of change of the input voltage.

1. **Triangular wave input:**

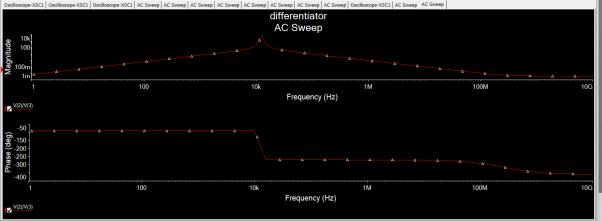
**Output from multisim:**

****

**Output in the lab:**

****

**Frequency response:**

****