ASSIGNMENT-6

INTRODUCTION TO

ELCTRICAL ENGINEERING

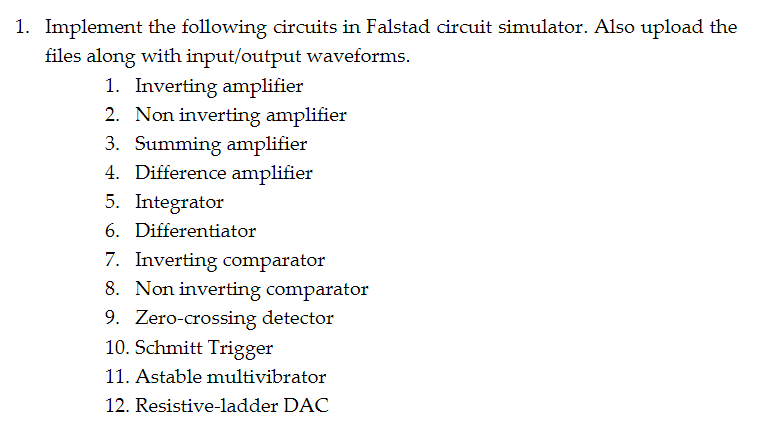
Professor- Dr. Neethu Mohan



Team Members

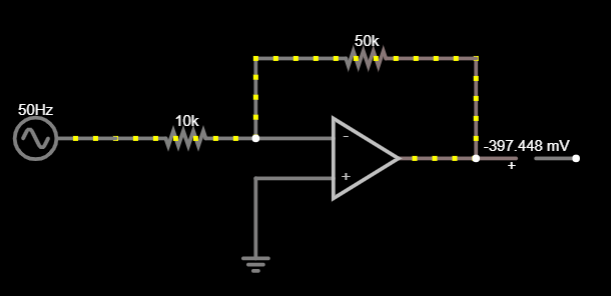
|  |  |
| --- | --- |
| **BATCH-A** | **TEAM-7** |
| GAJULA SRI VATSANKA | CB.EN.U4AIE.21010 |
| GUNNAM HIMAMSH | CB.EN.U4AIE.21014 |
| M.PRASANNA TEJA | CB.EN.U4AIE.21032 |
| VIKHYAT BANSAL | CB.EN.U4AIE.21076 |

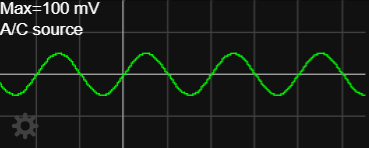
QUESTION



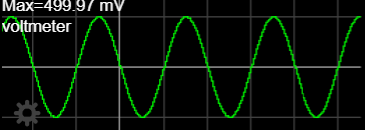
**1. Inverting Amplifier [**[**LINK**](https://tinyurl.com/27ubjecy)**]**

**Circuit Diagram**

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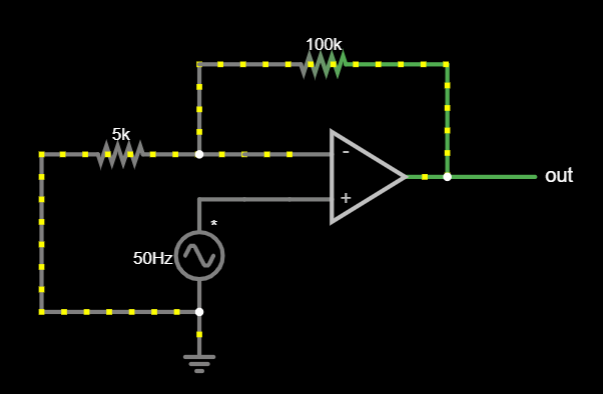
**Input  
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**Output**

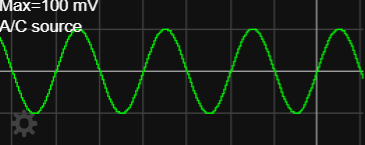
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**2. Non-Inverting Amplifier [**[**LINK**](https://tinyurl.com/2yr4pv6w)**]**

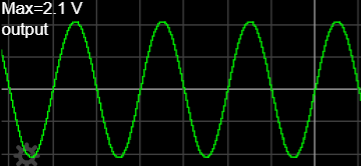
**Circuit Diagram**

****

**Input**

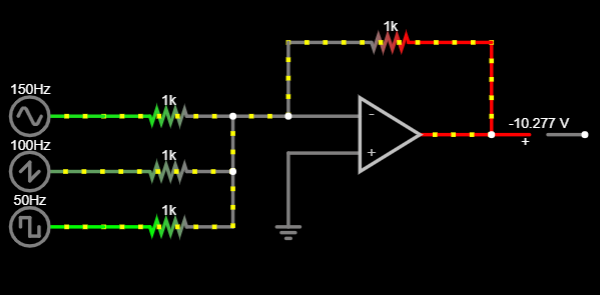
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**Output**

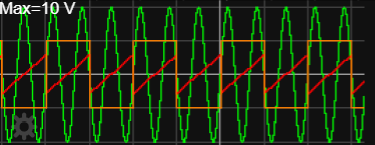
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**3. Summing Amplifier [**[**LINK**](https://tinyurl.com/2yevww4c)**]**

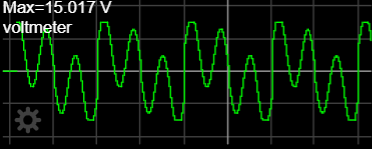
**Circuit Diagram**

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**Input**

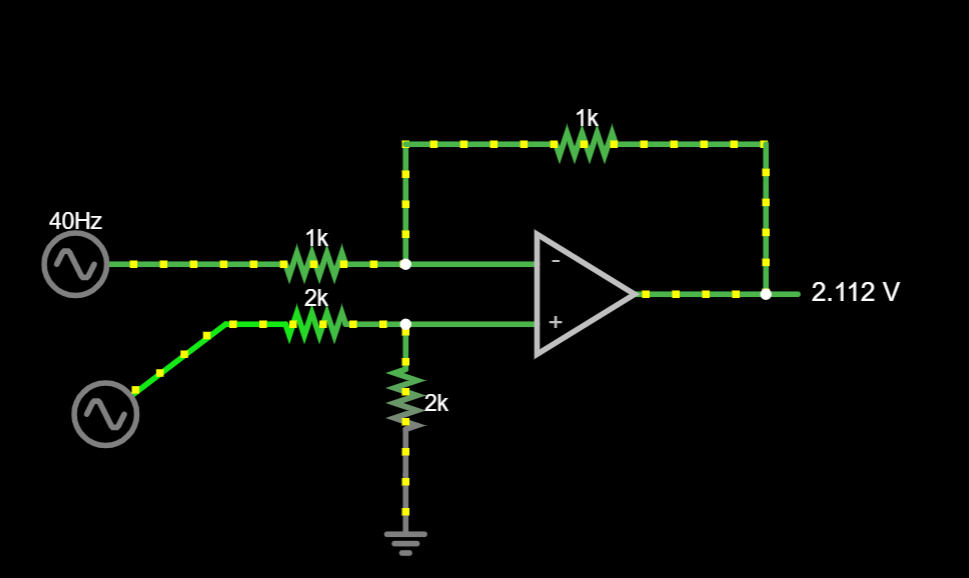
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**Output**

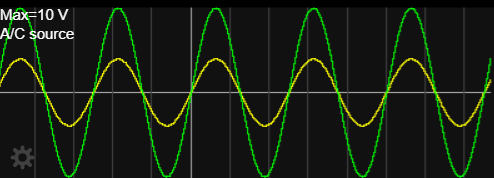
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**4.Difference Amplifier**

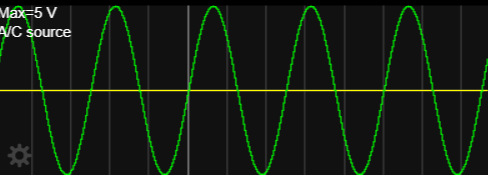
**Circuit Diagram**



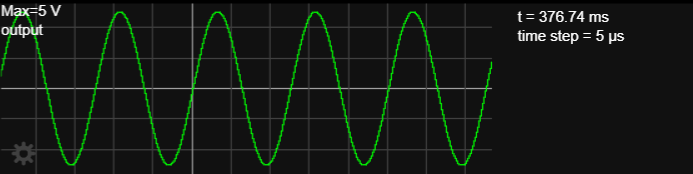
**Input-1**



**Input-2**



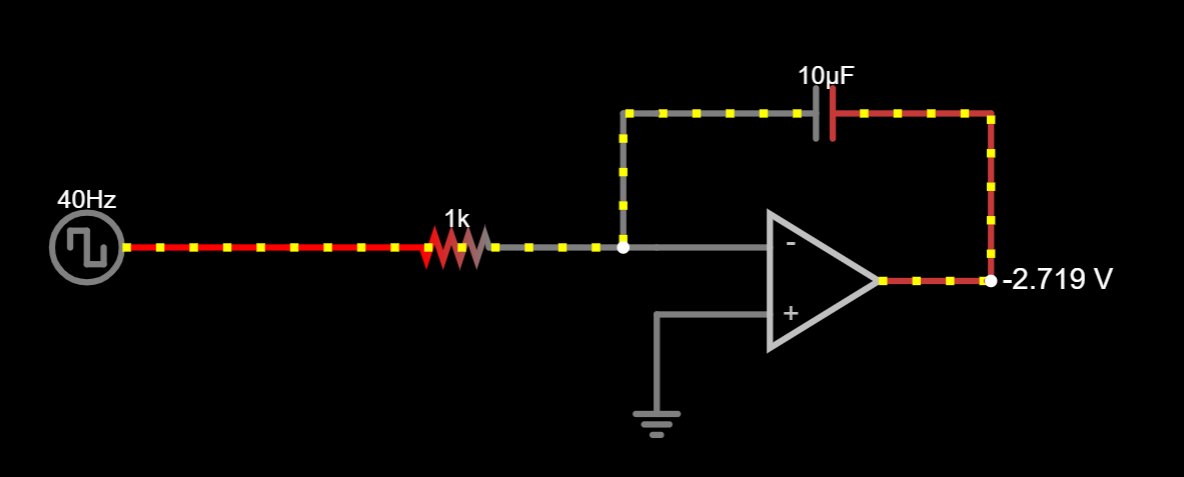
**Output**



[**Link**](https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgoqoQFMBaMMAKAEMKU8RcAWEDGh6R+3MEiZIw8eCAYpohSGTwYEhFCjBK8kcvMXK8YbIQTE8uQeWkyWAJ07dsQ3i55CqaOA6cfaXCC8cFAg3pAsAO5+XNwIgZr8EY7x3IkCQulUthHRgl4o-PnCSSwA5n7BAdxuKKERAPIZVHwChM4i4FAsAEpB7i4t7TzD2UHZVJNQ0Ai+qWF4Ne6xoTm9-XUr2PEL3GPB1FMwswD2INyESeOkyNNwGkhe5zwsZ9Igl6HBN4+w8GRmB5dOrvbCvAQfK7fOLTCAglhAA)

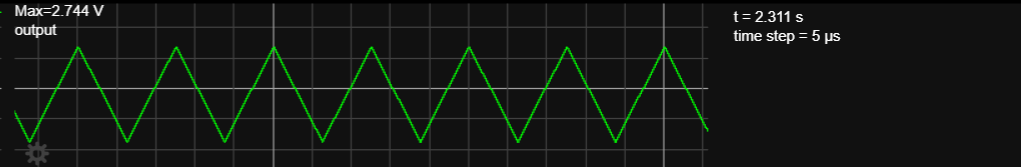
**5.Integrator**

**Circuit Diagram**

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**Input**

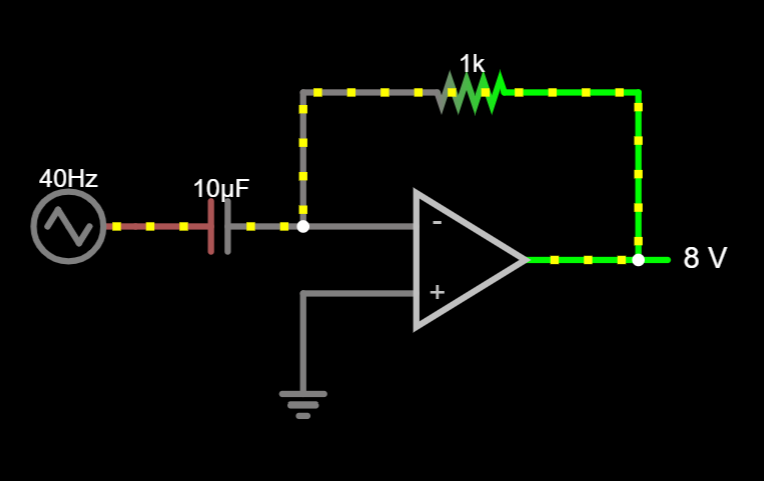


**Output**

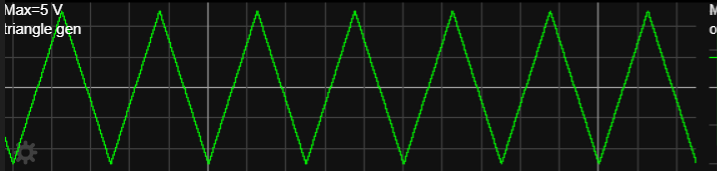
**[Link](https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcBmWBOA7AFjA5AmMSADjGIDYIFIQlraBTAWjDACgAlEZc4kfYn3wZ8-QVH4gsNJDTnQEbAIa0sWbpHUZNG9X1wgWSIvDhRY8fJAQ2sI8jwxPeEk-DYBjVevz4tO33V5Uwh8WBsEcgxSNFxNTT4YOHYAd1oBMT4EDMCoNgAnbhcBLJzxGjc2NO0fPxAa3TyAeXqdZB0MHkaISDYAc29uK0GeRLy07KE6hDV+Ot6J2ZL0oXK2AHsJciCpSDQ0cGCwfFlJGmQNkHIrnek0fXkIJ7YgA)**

**6.Differentiator**

**Circuit Diagram**

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**Input**



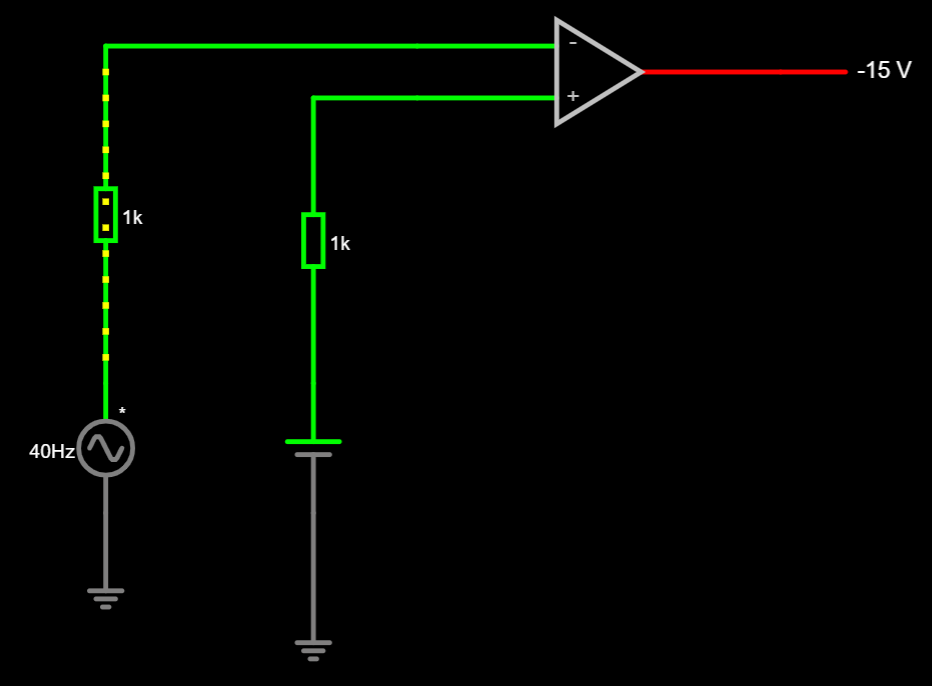
**Output**



[**Link**](https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgoqoQFMBaMMAKAEMKAWTkXHjSDz4g84JEyRh48KLHgZSpMIqwZOmFFGTSWAdy48UeUQm4gUKHpBYAnA+csgBhx1Slw9TwQ-7fh1gHkvIW8cQl5vCGsAc3tsNDjCUSprAGN7I1FOQkNjLRhpCCZoAQVlYjBOBCkEU1k4VgAlEGzcrPjzPKpsFtp82QQWAHsnEBytTkhSagKUJDdhlrGrXuJRBJgILZYgA)

**7.INVERTING COMPARATOR**

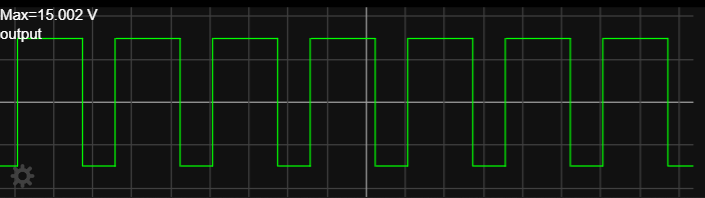
**Circuit Diagram : -**



**Input : -**



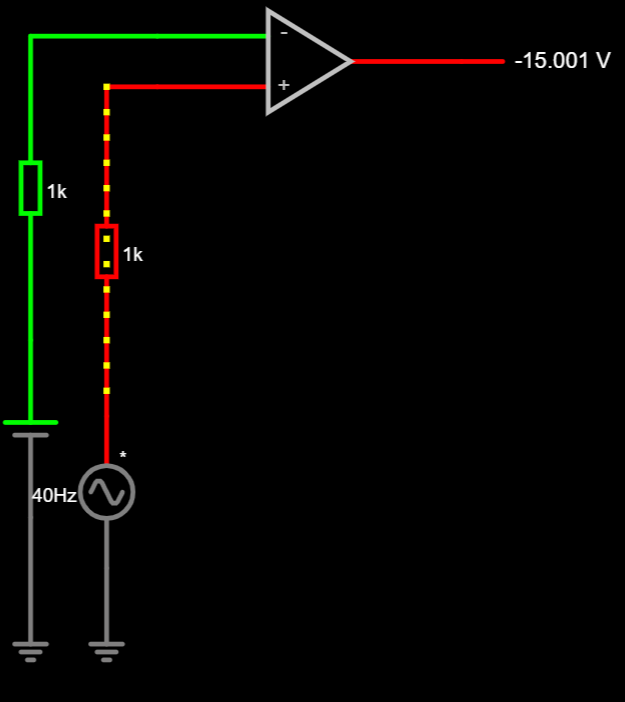
**Output : -**



[LINK](https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgoqoQFMBaMMAKAEMQAWOcTzkQin5g+IPOCRMkYePAqxCeDIQQpihDAjB4w5abMgsA7lx5hCVbNkLgLUFgCcQVm+cvXnHqjLgsA5p42nOaBXOpQ9ibc3ijiaOJgsfZO8eBJqS4RPoYAbiCpwTYZXuCmyBFUMAj++fhcIQWE-JUseZmFoZmVZUjdVSwA8gJCvPyKCaItAPYgxALNpsRxldAQ3iwzNk0R3KTlMLJkKoLS+QLOLEA)

**8.NON-INVERTING COMPARATOR**

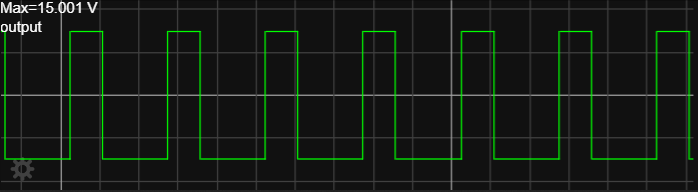
**CIRCUIT DIAGRAM: -**



**INPUT: -**



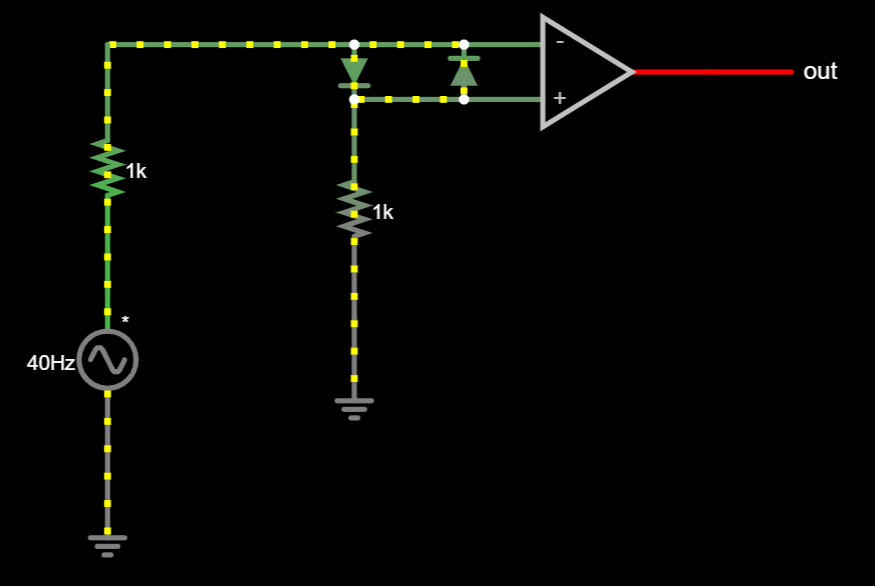
**OUTPUT: -**



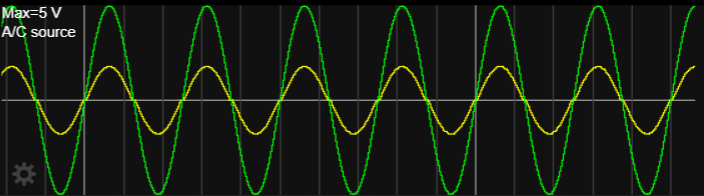
[LINK](https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgoqoQFMBaMMAKAEMQAWbFcQqwik58qecEiZIw8eNQaFo2DJxTZieMpzx5sK5DJYB3Lj3Cdh2BLzDmoLAE4hL1286fZCUfZBYA3J1ZcWgG82B5eVJy0EVDQCCwA5iFBYm5WYlQ+xtzWGJ5RVGB5do4F4MVl2HjChfB+XHBceJGNVTXgDcgxMPFJZVottCgZdgDyIILCYPwT2iIRLAD2IMQT7VHqIGixEIVLIOSE65CkXTAyZIQIglJbB04sQA)

**9.ZERO-CROSSING DETECTOR**

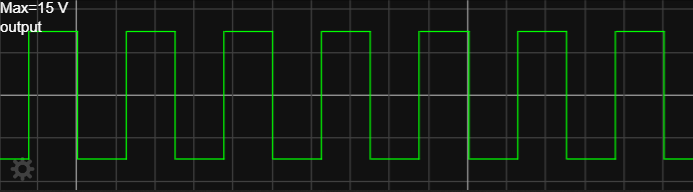
**CIRCUIT DIAGRAM: -**



**INPUT: -**



**OUTPUT: -**

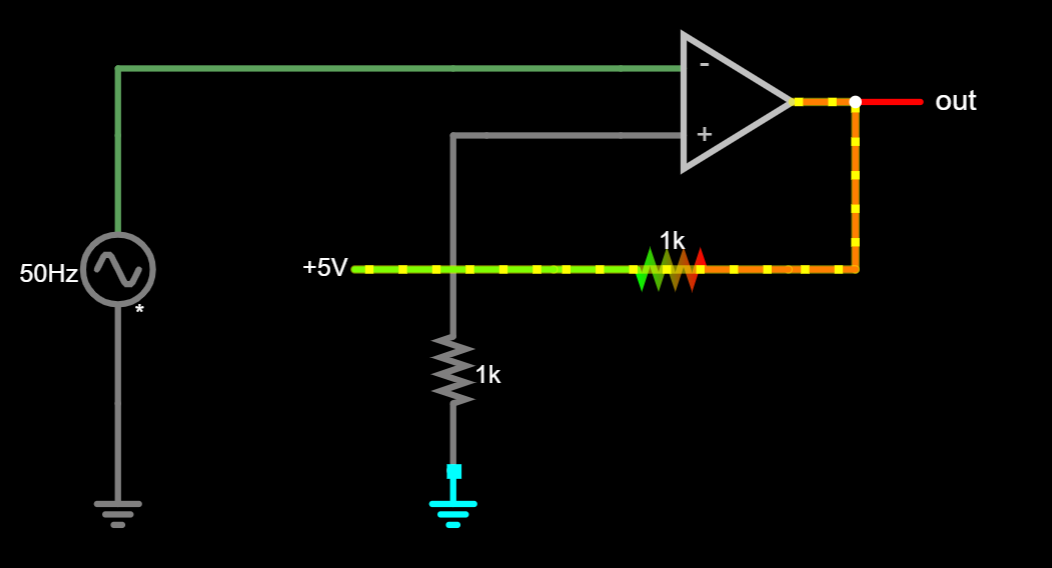


**[LINK](https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWEB2B0DMzIBYBMZcEFsEA2MbEBSKqmhAUwFowwAoAQxHVIA5xslBAQGV+YJCyRh48cNF7pIybMnQJcpSKUIBOeTy0llFXtl6bwsyGwDu3PuC3ccTmjYBOLymGdLKuLz8NDJwbADm3iCB-P7cPFBQbAAmDuJ+jgT8uCDJDABmHACuADYALilRWVXOOXmFpRX2POKBVW02za7VviEdbF694G1DuMg5IfBsAG5u3BpzYxPgINj0ie7QCBFz6jlD2L4bbADyVCIUQsikoscA9uAQpJQ0a7rZmxAhbA-6z4lvfRIGBwdAEaTRED6dBsIA)**

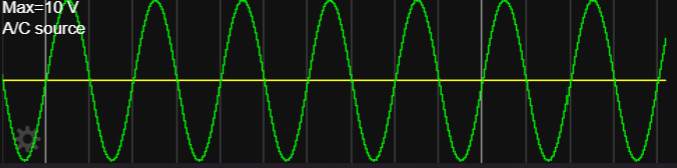
**10) Schmitt Trigger**

**a) Ideal Op-AMP (**[**LINK**](https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWEBmAHNAbATgwFjwrmAEy5Zhi4hZYhIKR0CmAtBQFABuIuq4A7Bh59kkKowgNwjGVGgJ2Ac2EoxK5AmJQo7AO4hikPpSq9wucXpUnrgnfsPG7jg7hnsATgaOvGL5MhCEvBWbhIYjGG+9jxw0YF8pO4A8rHhkWZgEdqQSt4igfkomjnsAIYGqMbZUVmMxkhsSGDw8NTQ-FnIYPwBgRgaWMjaLa1WxFXmVC42uQ6TPULEpAJB4yuLRZu5XgnRxAhLbiMhAEoGh9E2STmxdLcwCgD2IHx42m5YiTLQEBLsL0Y70ikBo0jkrSwgkOB3ABm0yHYQA)**)**

Picture: -



Input:

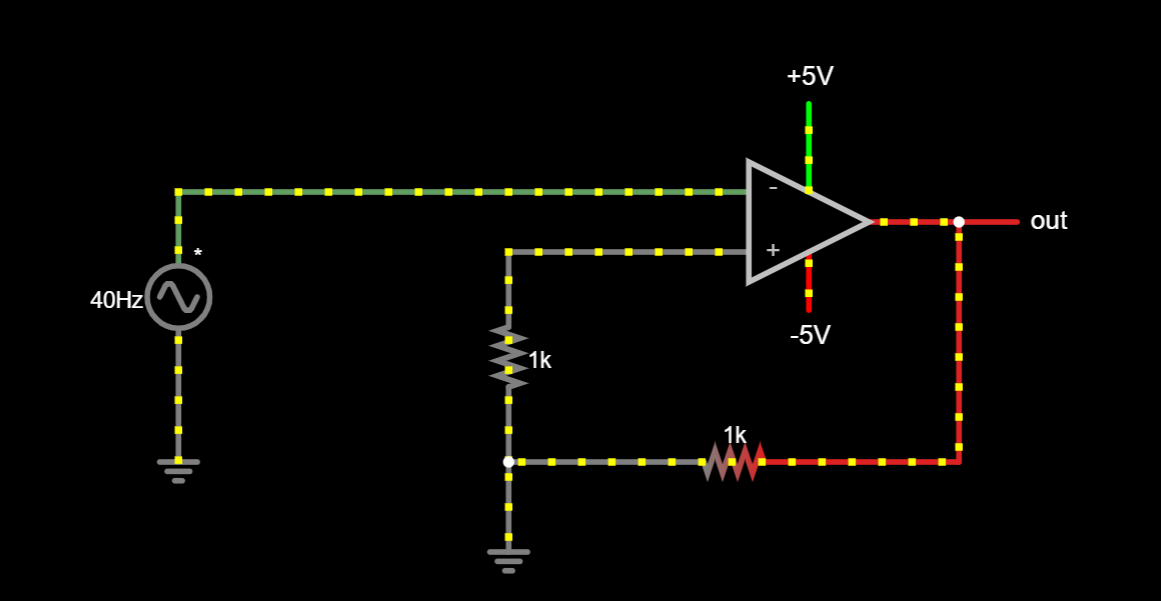


Output:

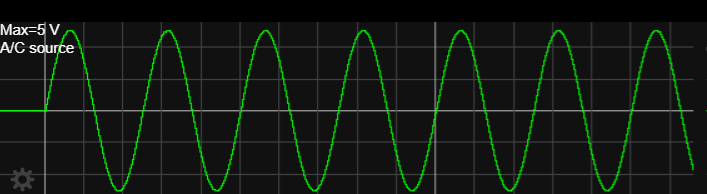


b) **Non-Ideal Op-AMP** **(**[**LINK**](https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgoqoQFMBaMMAKACcQ08QAWbFXj258BVMPHad8IflS69+UZHBYBzKcMXyhVXWpkCecAwtFQWANxNGqWvNzG9aS3dAQsA7iZT3Ovnw6eftyyGgZ6XjxCMpA8gpqiLEbEwTFxUSGx4FDQhCAMMNjECAhgCNhgxHhghBiEhDx5MJAoFeYA8vFpvMR5uHF6AEoyhNyYAtijnCgDSkbUujnuw5MhkyMhU4vzDEiLMO4A9rwgDXOQVQvQEHIn2CzHKWdUydx719msQA)**)**

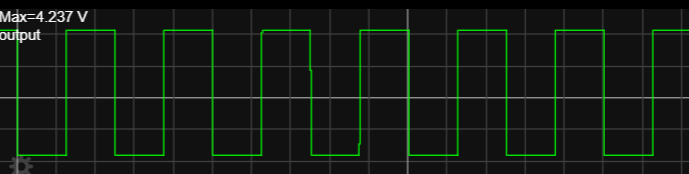
Circuit:



Input waveform: -

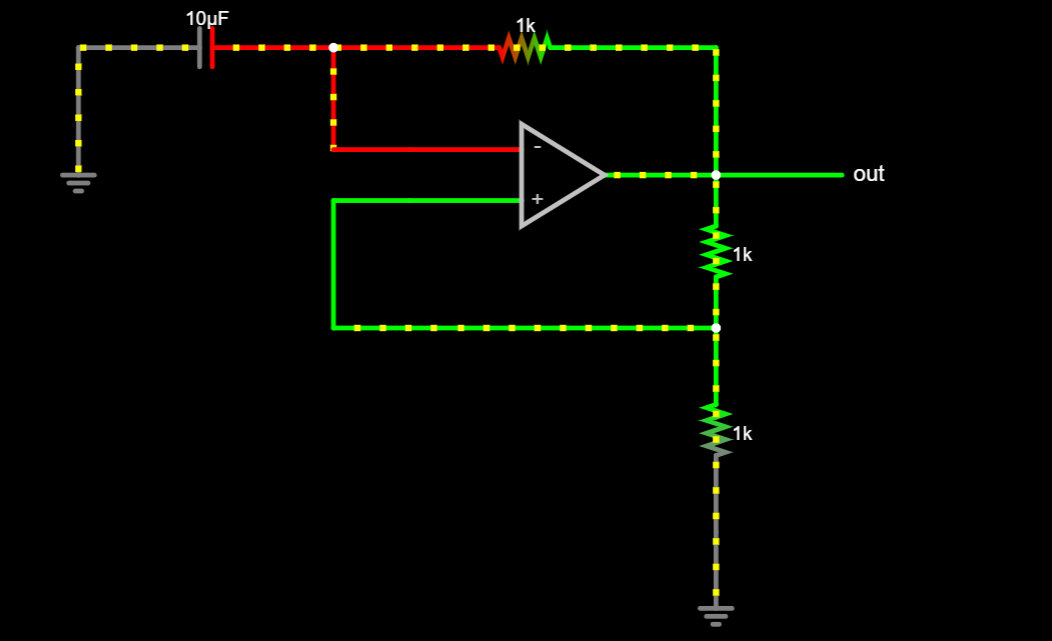


Output Waveform: -

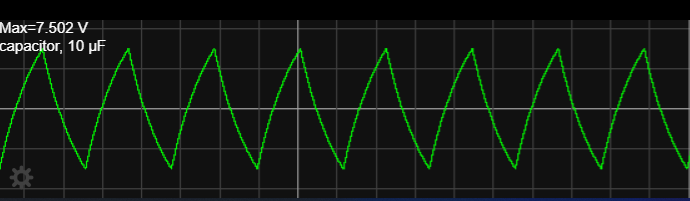


11)Astable Multivibrator ([Link)](https://falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgoqoQFMBaMMAKAHMRMVP9ONuUePFCgsAxnwG8ALNinCqMeJAgNs0THix4Eg6YMKFySlSwBOIWfJBHrVMPBYBDS3iqDhtzkJDCwSJiQHZSp1TW1dPH08Q3IMaEpIFGZIQmkwIgwtZGUWAHdLOUlCu3Mbfm9PCuwokWDIMq8a6XLuBAy6xwKrEFwWnubRbqLBptqGgq8PVp4FFgB5GemMQmFpxXYZ9u4vBEJFIdd3Cp6uQ+k3Xsh+kevRAHtwGxaqaUhiP0VYFCR3J+wWI8HM8RG8PjwoNAINCWEA)

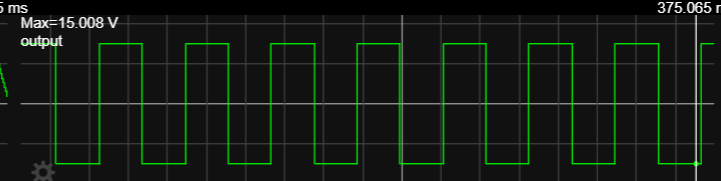
a) Ideal Op-AMP  
Circuit : -



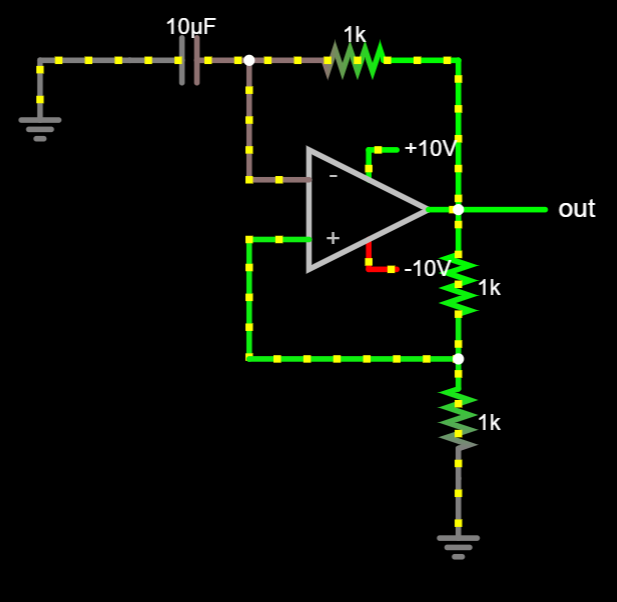
Input waveform: -



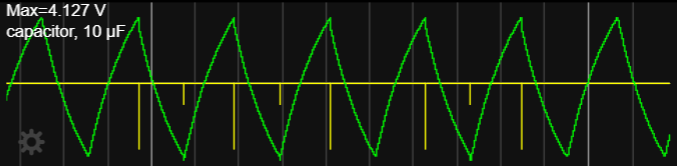
Output Waveform: -



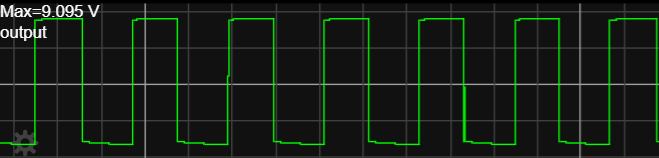
b) Non-Ideal Op-AMP ([LINK](https://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWEBmAHAJmgdgGzoRmACzICcpkORICESCkNApgLRhgBQA5iKo8dT7hcUKBwDuvfkWph0qcDLEBjcPMWzS6DaJjxIEFsmhhUcyMixF0WdJAR4osAxPBadYd3YWRXn7ehE-O7IkNS+kv4oYdHUoeEcAE6xIOiBKfGiYPBJbtoCKQX8OZKZBZlpCcmZNTHIOD7gOTw1DSlBjJ0cAPIplSht-V1BpKnp-fIK-RAwOCAsMDIIuGBUkKQ4ZFiQqHN66MgzrhM7eamnEWeBjBNBYpKTY3ExQxwASqkOV6gKUZ0gd2yuicCHenzm+AhP3BwLubH+nWgoIA9uAIFRRCNfoiZuAOKjtBjGCNRkgwNA5hAAigOEA))  
Circuit:



Input:

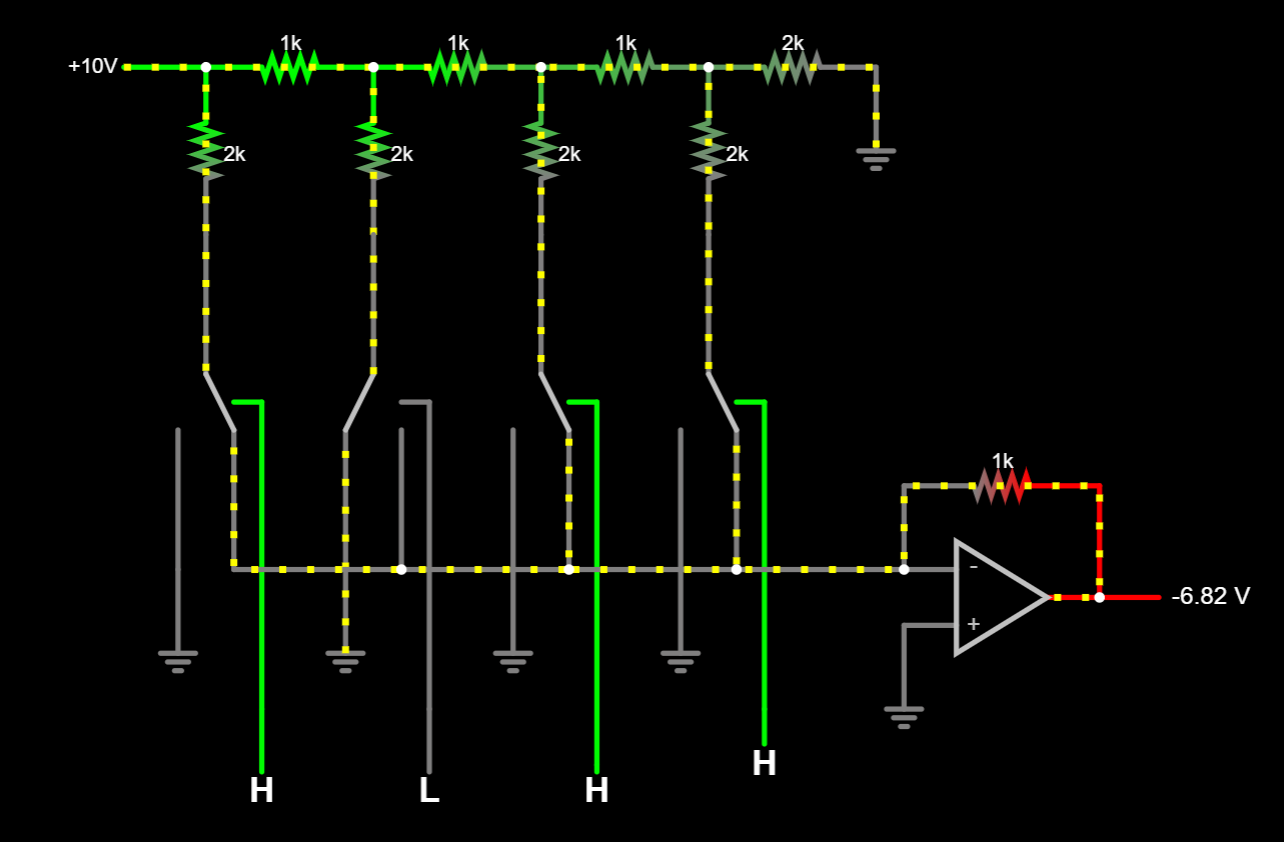


Output:



12) Resistive-ladder DAC( [Link)](https://falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgoqoQFMBaMMAKACVwNDwU9wwUPPlSoAWKmBFQo0BCwBOnbgL6ZBK6ZLgKQaoSGyE+GifB2HjvEKMKj9p7Ypt2NCQhKtU02gOYV3+m4SXNKQOmAhGhHcKCh2XmaKehp6sfG6iQZG+ha6cdLeYU62+s556YUsYAHR5UrW1QUO8C1h1V4Ygmm6nQ3cCcitLVUBud25oo0DWkPa7dYl3WWT-RmDs2F+8yvgAWUiLH4obn26J-tQhwYIgjvYNwvpm9aifDuir4+hLADu4MSCbBoDJ8IEHP68UHA3B2MGXP7YPCw4HiKhwsJ-V5olHEbjo37WXEGHHcUREjHWODEsRUm7CAkw6kGSB2Mn9AloKEJN7klgAGRBhJi+AoH00IAAZgBDAA2AGc6NQwgLGWzmXYEGKpNL5YqkMrKbQrKjRekIDqFUr+UKbWq6eKLXr4f9bo1IacKe67kiPQyfe88GIpgSsacECEdmEpRQI0CQEY3nHjEgmEgZvAZC0jGgIhhiLh8DhIORmr4Y6TPuHSeTnVWwyFckVy1k+AmW5ozH827k26I42EAPLxvCJwQYB599SXIA)

Picture: -



INPUT:



OUTPUT:

