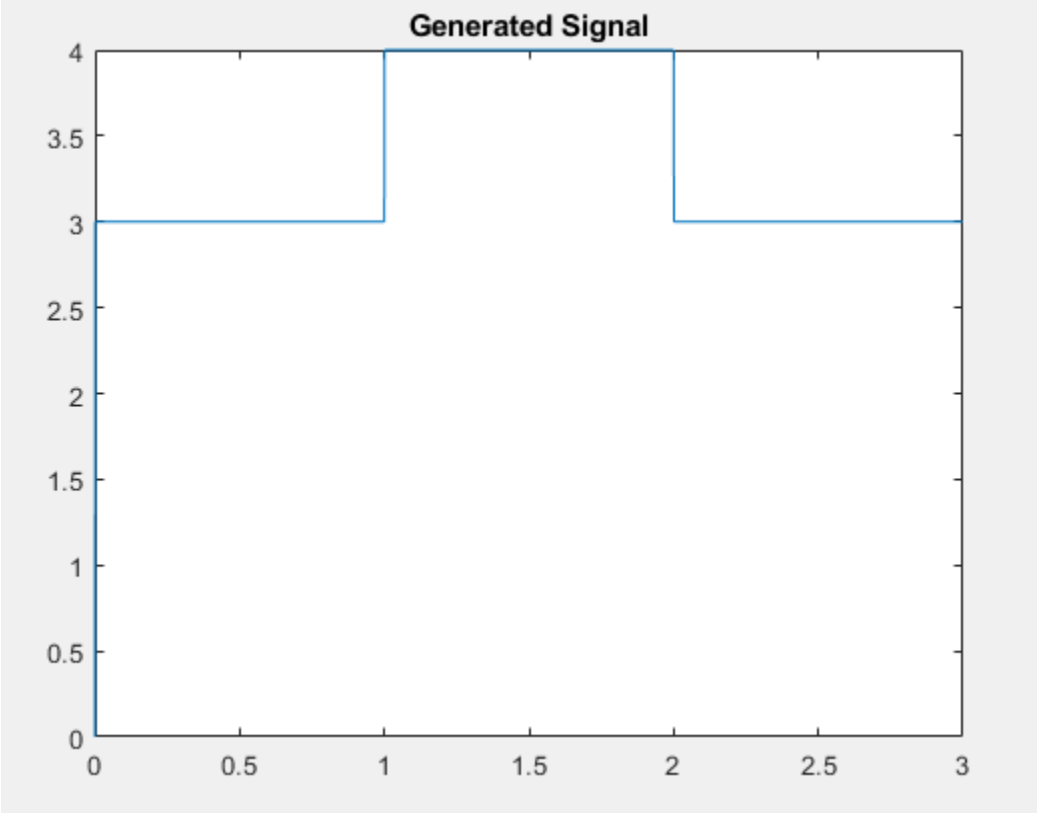
Signals and Systems Final Project Part II

By: Adel Ashraf Mohammed Mohammed

ID: 6297

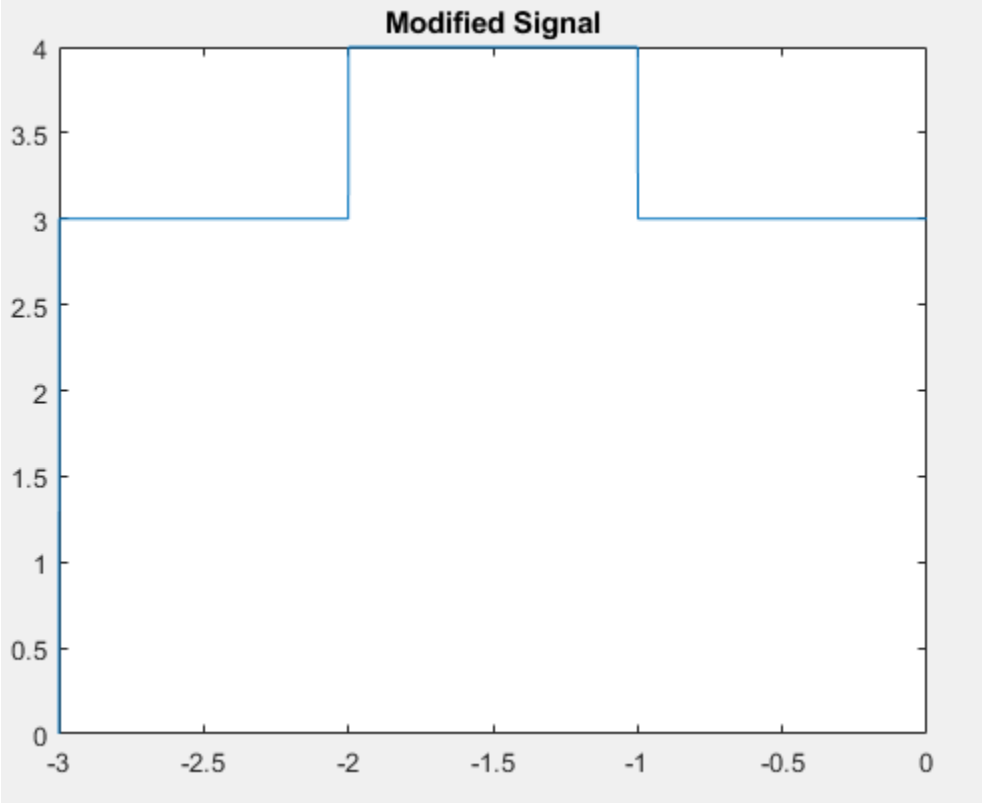
Test Case #1

```
** General Signal Generator **
* Enter the sampling frequency: 1000
* Enter the start time: 0
* Enter the end time: 3
* Enter the number of breakpoints: 2
* Signal
* Enter the Breakpoint position: 1
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 3
* Signal
* Enter the Breakpoint position: 2
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 4
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 3
```



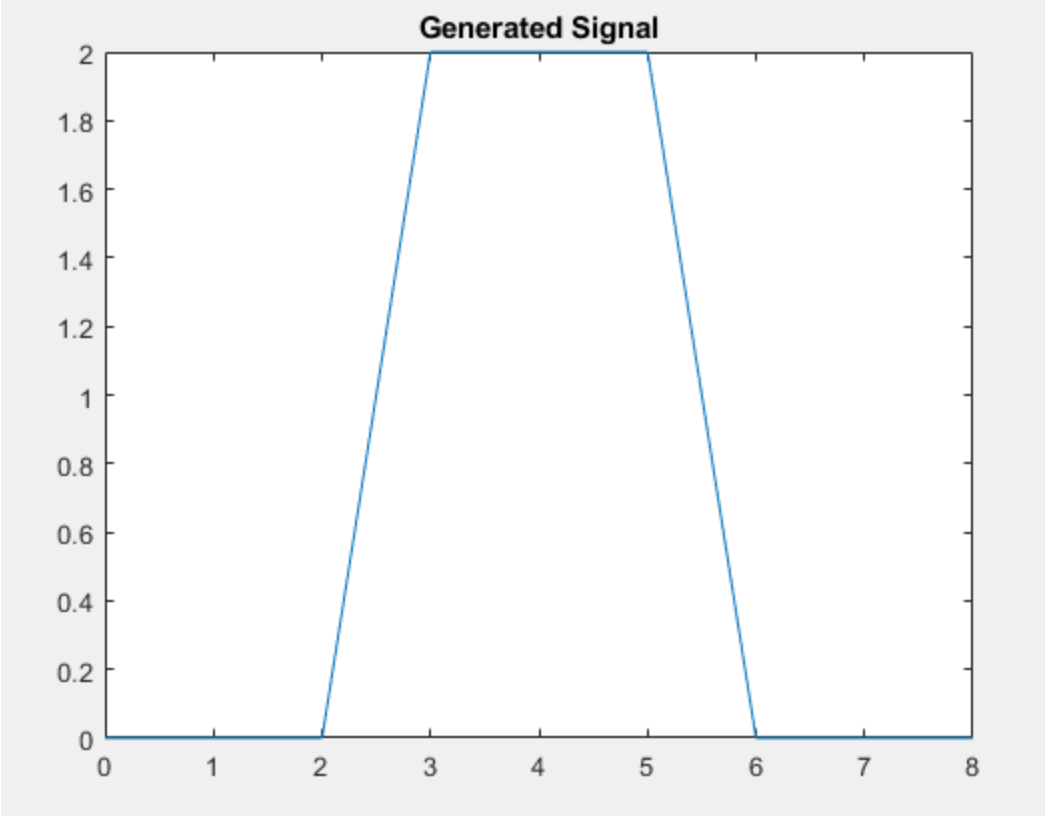
Operation: Time Shift by 3

```
* Enter the number of operations to be performed (0 for NONE): 1
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 3
* Enter shift value: 3
*** Thanks ! ***
```

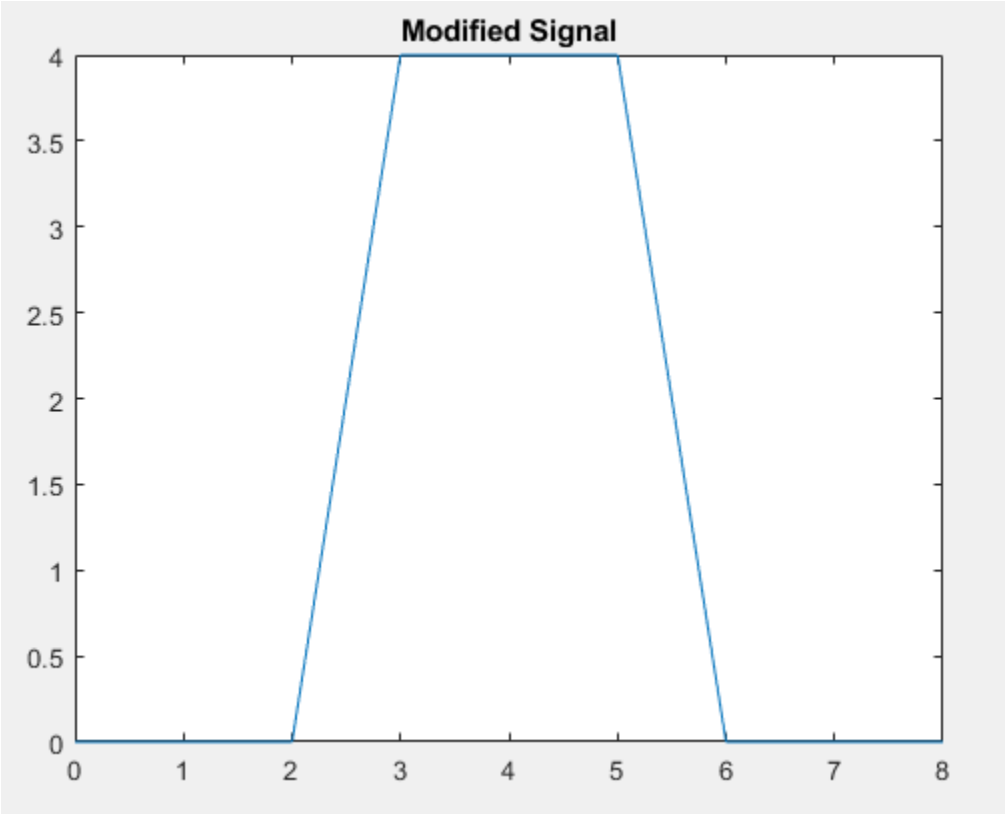


Test Case #2

```
** General Signal Generator **
* Enter the sampling frequency: 1000
* Enter the start time: 0
* Enter the end time: 8
* Enter the number of breakpoints: 4
* Signal
* Enter the Breakpoint position: 2
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 0
* Signal
* Enter the Breakpoint position: 3
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 2
* Enter the Ramp slope: 2
* Enter X intercept: 2
* Signal
* Enter the Breakpoint position: 5
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 2
* Signal
* Enter the Breakpoint position: 6
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 2
* Enter the Ramp slope: -2
* Enter X intercept: 6
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 0
```

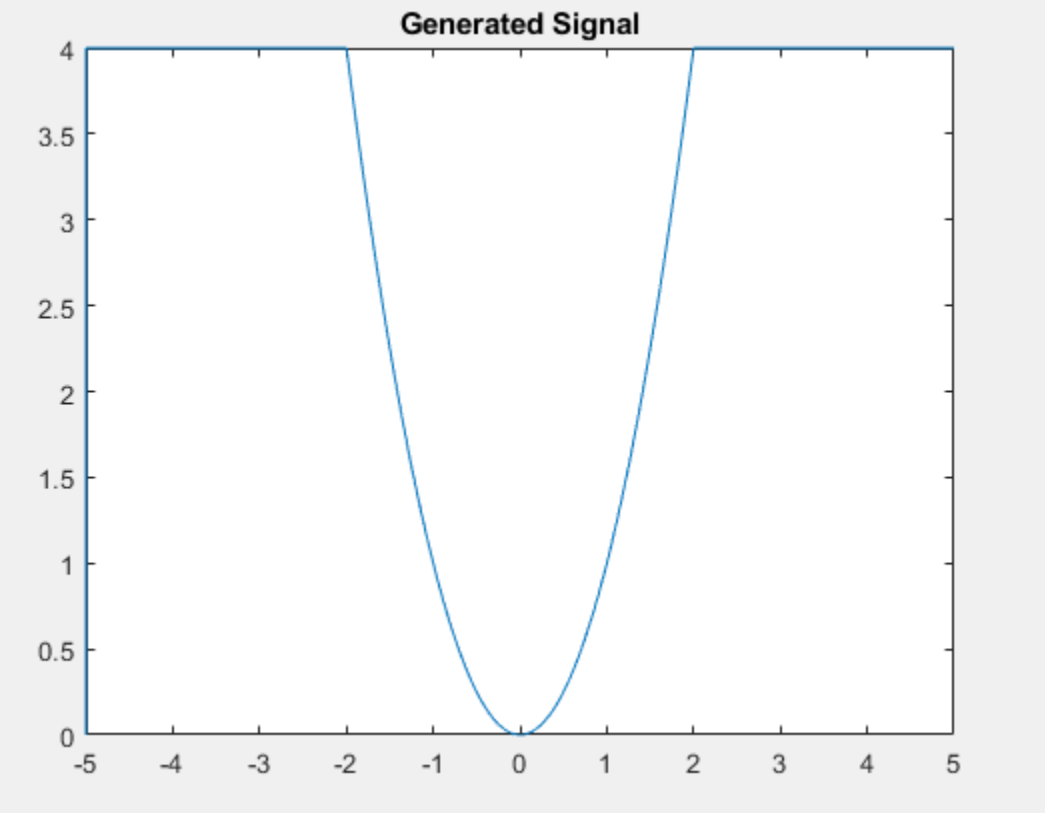


Operation: Amplitude Scaling by 2



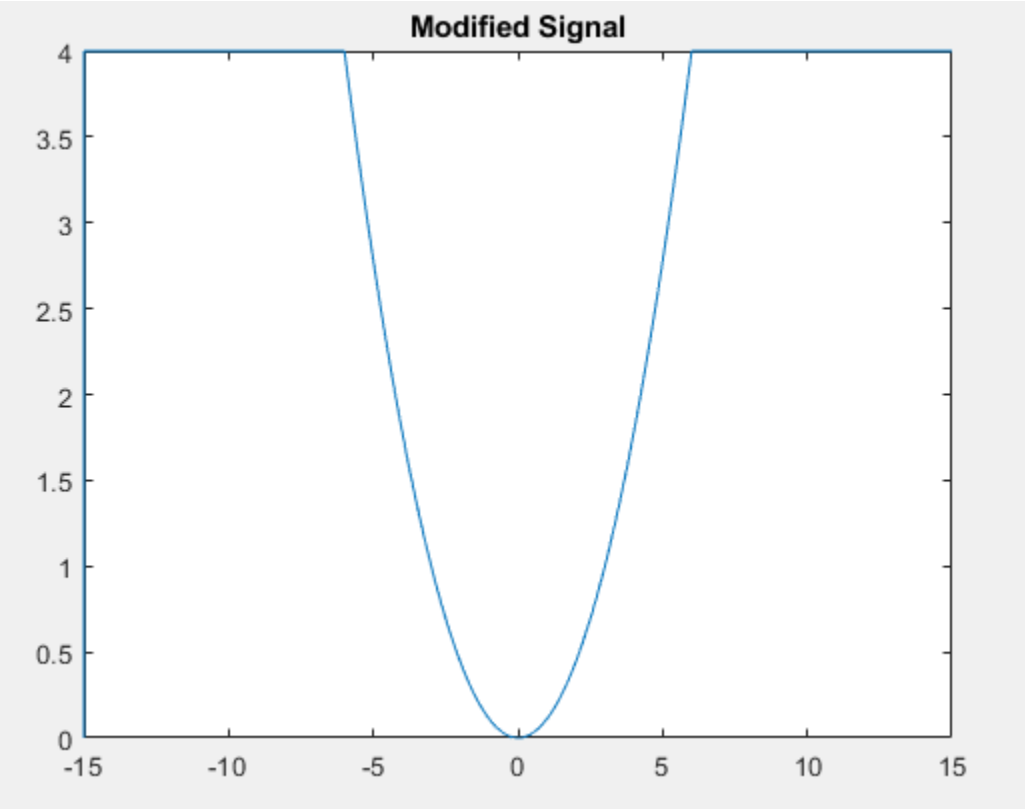
Test Case #3

```
** General Signal Generator **
* Enter the sampling frequency: 1000
* Enter the start time: -5
* Enter the end time: 5
* Enter the number of breakpoints: 2
* Signal
* Enter the Breakpoint position: -2
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 4
* Signal
* Enter the Breakpoint position: 2
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 3
* Enter the order: 2
* Note: Enter the coefficient of the greatest power first
* Enter the coefficient: 1
* Enter the coefficient: 0
* Enter the intercept: 0
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 4
```



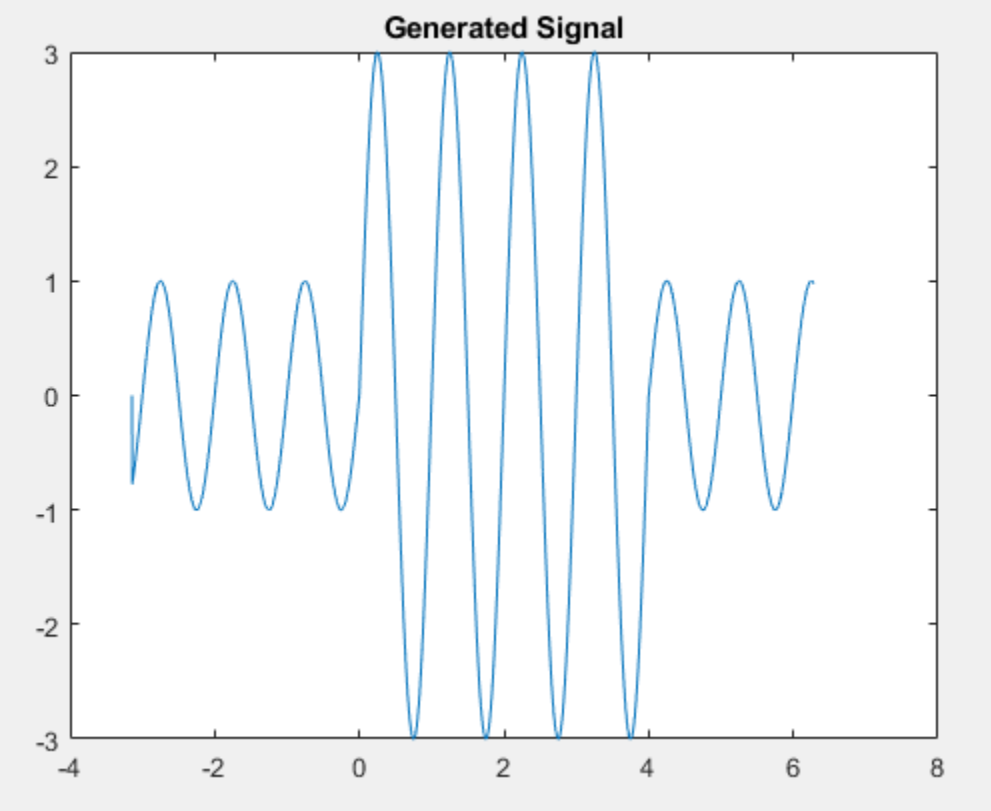
Operation: Expanding by 3

```
* Enter the number of operations to be performed (0 for NONE): 1
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 4
* Enter the expanding value: 3
*** Thanks ! ***
```



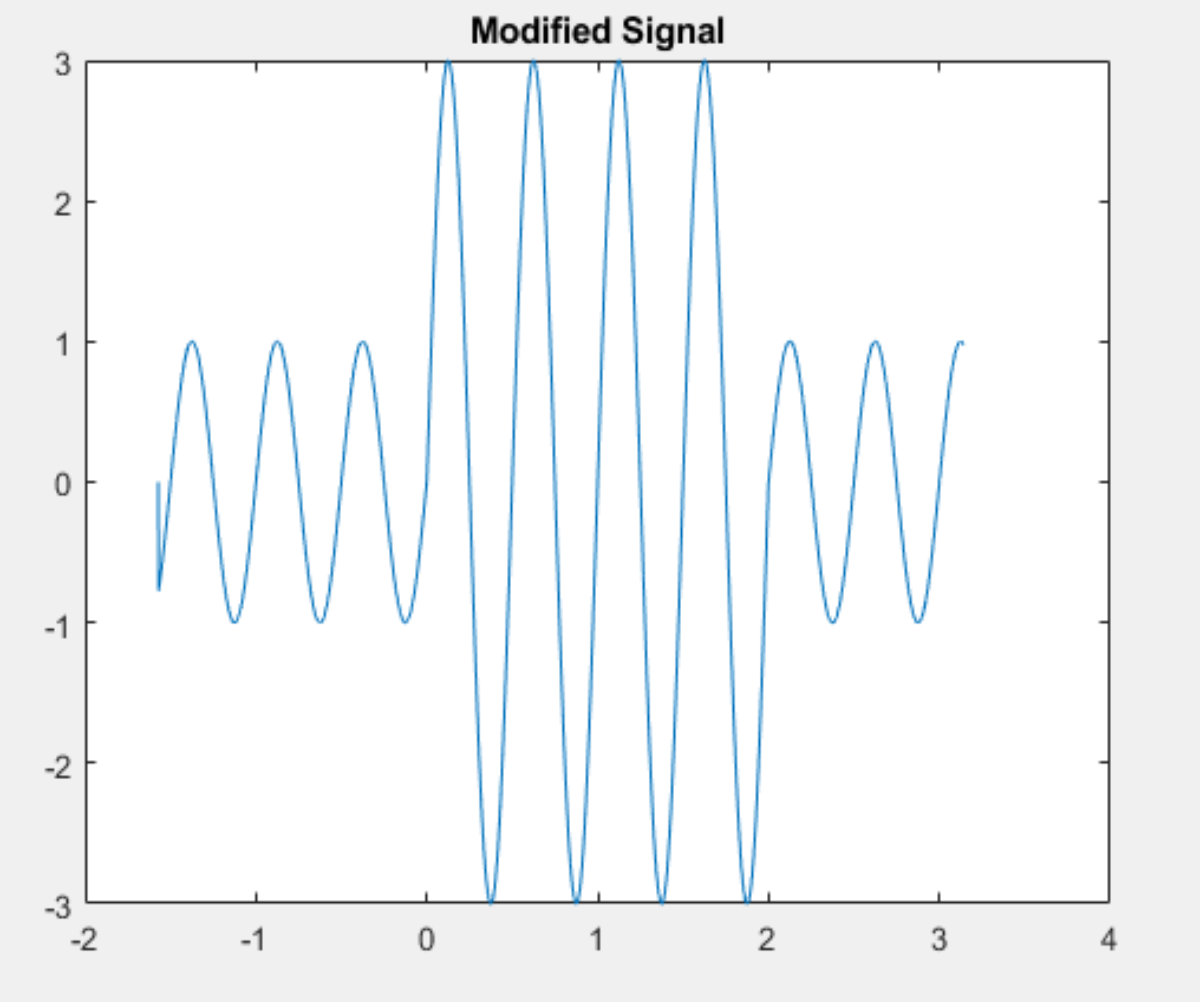
Test Case #4

```
** General Signal Generator **
* Enter the sampling frequency: 1000
* Enter the start time: -pi
* Enter the end time: 2*pi
* Enter the number of breakpoints: 2
* Signal
* Enter the Breakpoint position: 0
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 5
* Enter the Sinusoidal amplitude: 1
* Enter the frequency: 1
* Enter the phase in degrees: 0
* Signal
* Enter the Breakpoint position: pi
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 5
* Enter the Sinusoidal amplitude: 3
* Enter the frequency: 1
* Enter the phase in degrees: 0
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 5
* Enter the Sinusoidal amplitude: 1
* Enter the frequency: 1
* Enter the phase in degrees: 0
```



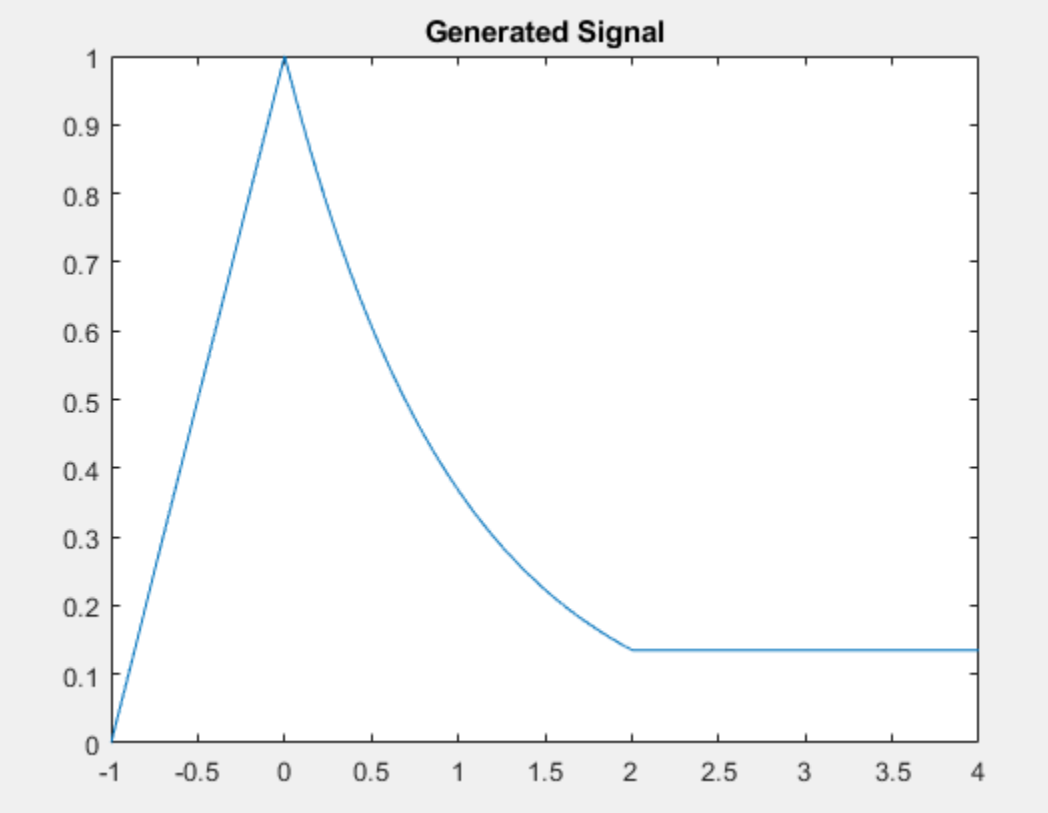
Operation: Compressing by 2

```
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 5
* Enter the compressing value: 2
*** Thanks ! ***
```



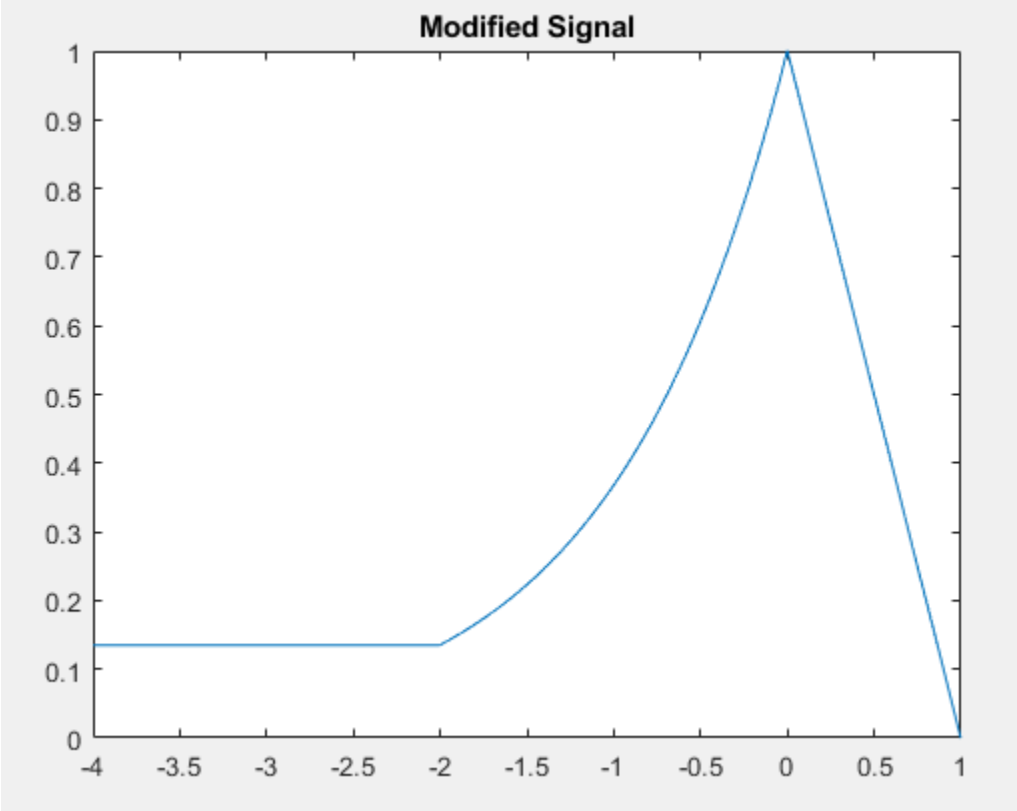
Test Case #5

```
** General Signal Generator **
* Enter the sampling frequency: 1000
* Enter the start time: -1
* Enter the end time: 4
* Enter the number of breakpoints: 2
* Signal
* Enter the Breakpoint position: 0
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 2
* Enter the Ramp slope: 1
* Enter X intercept: -1
* Signal
* Enter the Breakpoint position: 2
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 4
* Enter the Exponential amplitude: 1
* Enter the exponent: -1
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 0.135
```



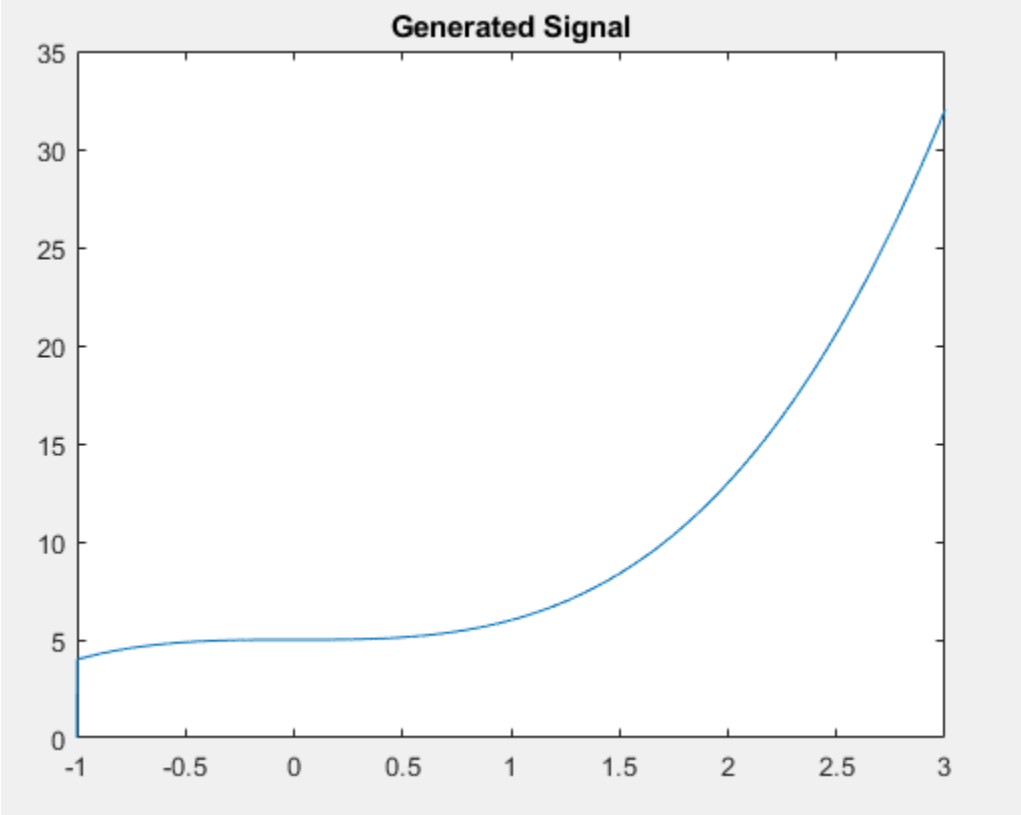
Operation: Time Reverse

```
* Enter the number of operations to be performed (0 for NONE): 1
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 2
*** Thanks ! ***
```



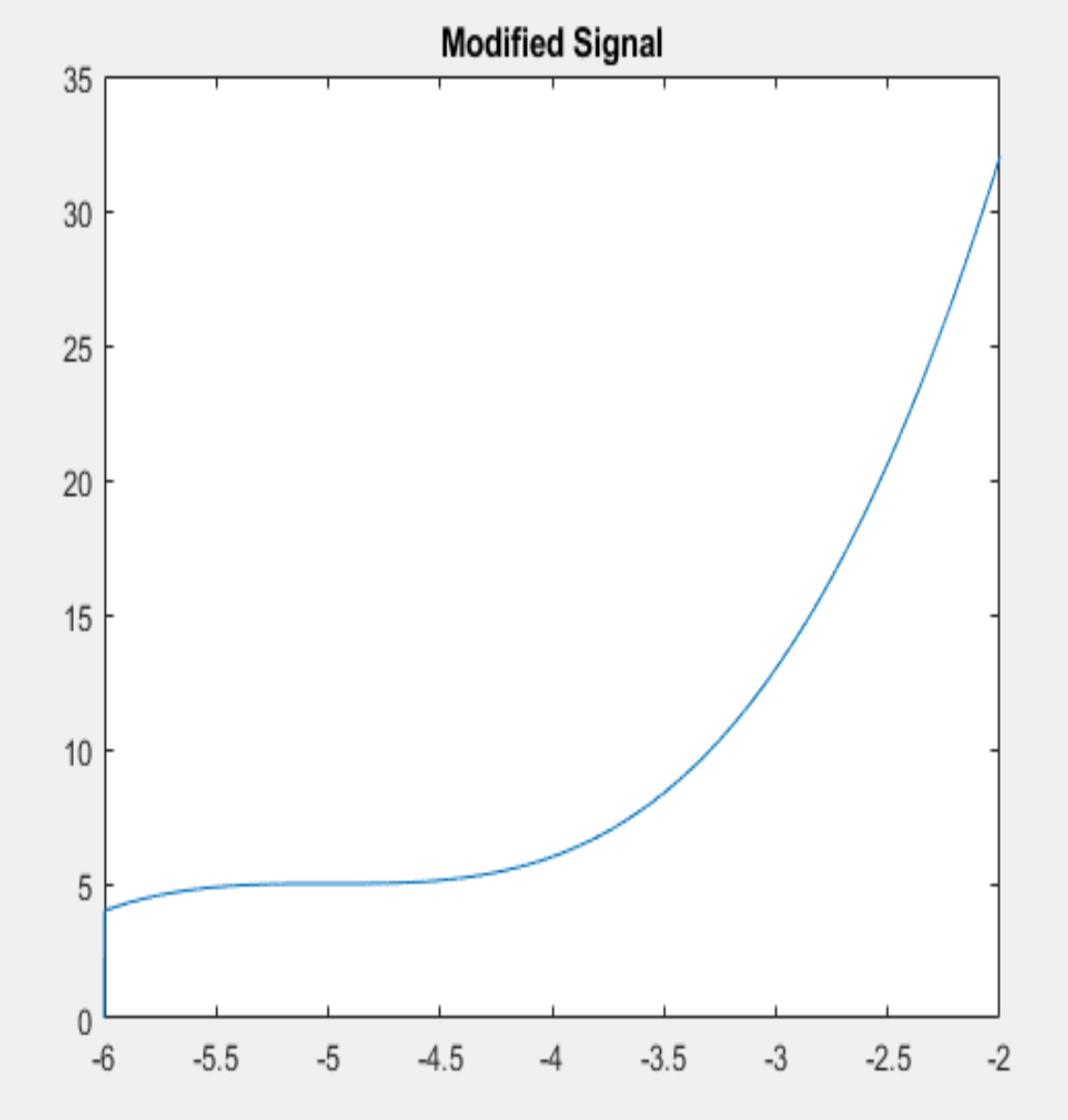
Test Case #6

```
** General Signal Generator **
* Enter the sampling frequency: 1000
* Enter the start time: -1
* Enter the end time: 3
* Enter the number of breakpoints: 0
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 3
* Enter the order: 3
* Note: Enter the coefficient of the greatest power first
* Enter the coefficient: 1
* Enter the coefficient: 0
* Enter the coefficient: 0
* Enter the intercept: 5
```



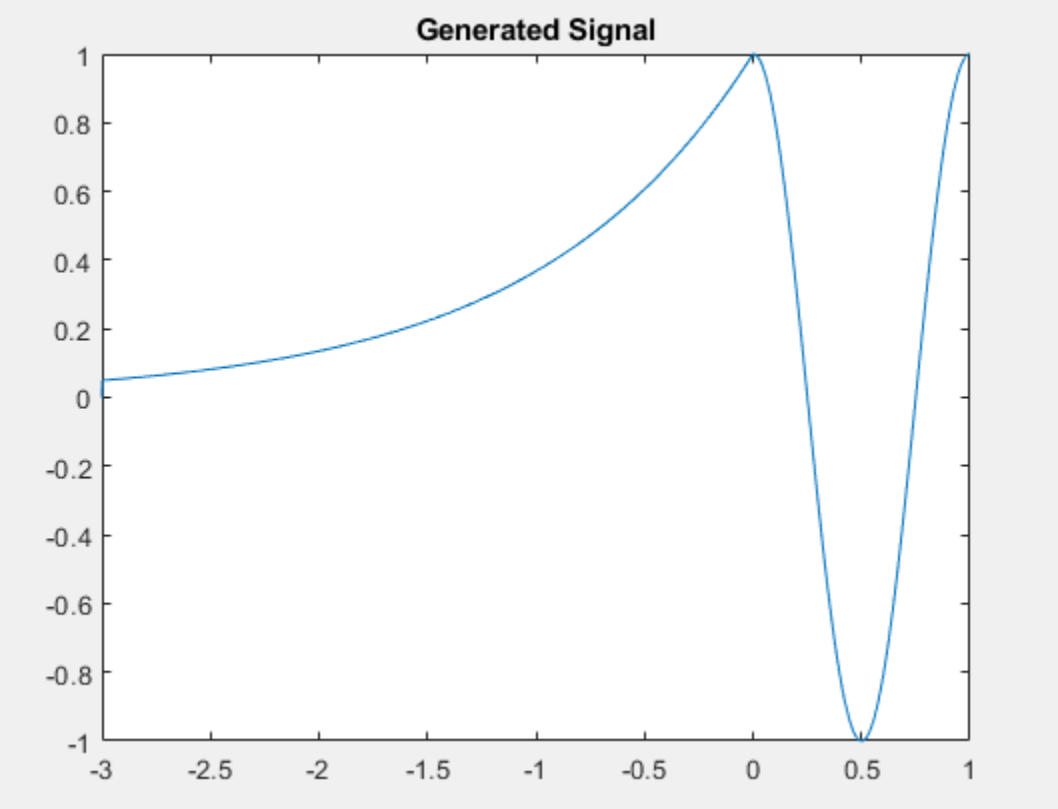
Operation: Time Shift by 3

```
* Enter the number of operations to be performed (0 for NONE): 1
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 3
* Enter shift value: 5
*** Thanks ! ***
```



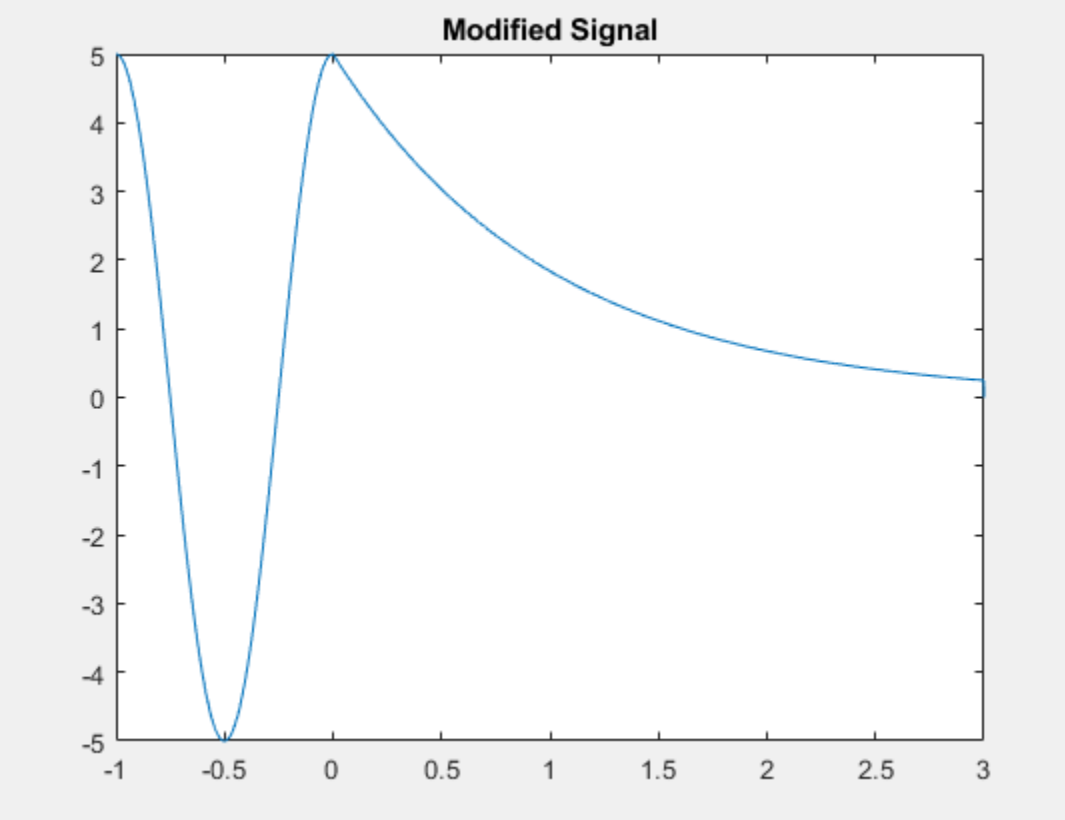
Test Case #7

```
** General Signal Generator **
* Enter the sampling frequency: 1000
* Enter the start time: -3
* Enter the end time: 1
* Enter the number of breakpoints: 1
* Signal
* Enter the Breakpoint position: 0
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 4
* Enter the Exponential amplitude: 1
* Enter the exponent: 1
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 5
* Enter the Sinusoidal amplitude: 1
* Enter the frequency: 1
* Enter the phase in degrees: 90
```



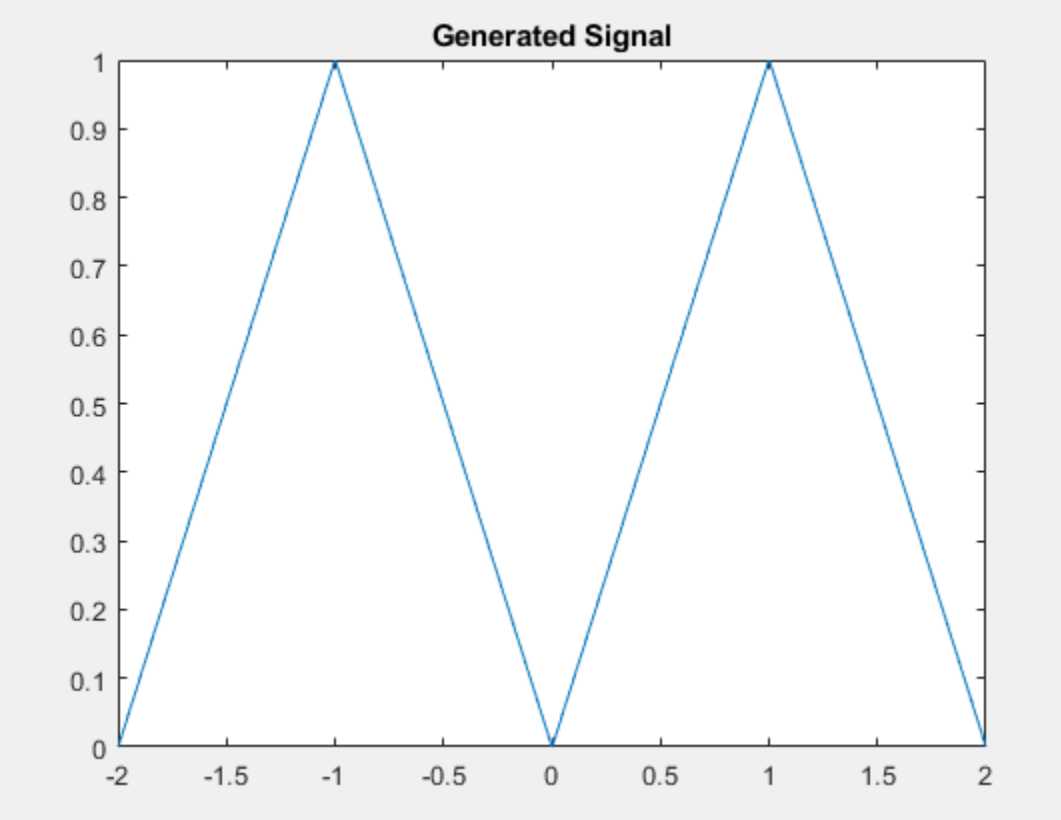
Operations: Amplitude Scaling by 5 and Time Reversal

```
* Enter the number of operations to be performed (0 for NONE): 2
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 1
* Enter scale: 5
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 2
*** Thanks ! ***
```



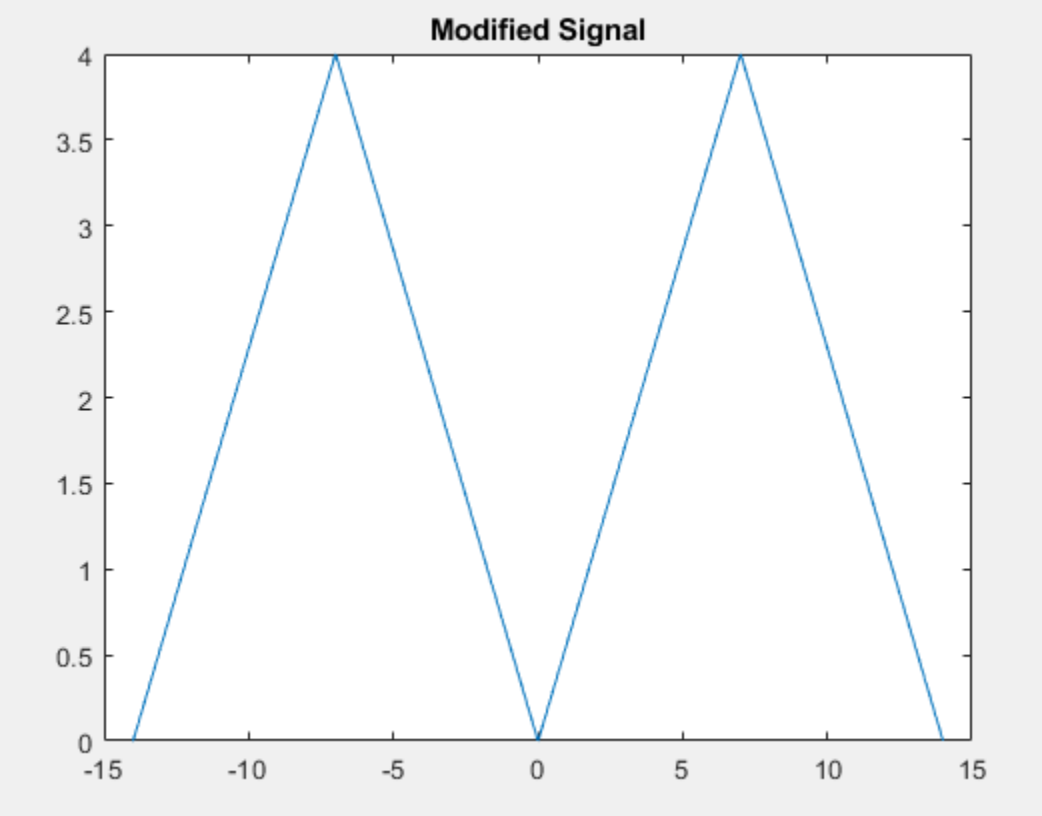
Test Case #8

```
* Enter the sampling frequency: 1000
* Enter the start time: -2
* Enter the end time: 2
* Enter the number of breakpoints: 3
* Signal
* Enter the Breakpoint position: -1
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 2
* Enter the Ramp slope: 1
* Enter X intercept: -2
* Signal
* Enter the Breakpoint position: 0
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 2
* Enter the Ramp slope: -1
* Enter X intercept: 0
* Signal
* Enter the Breakpoint position: 1
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 2
* Enter the Ramp slope: 1
* Enter X intercept: 0
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 2
* Enter the Ramp slope: -1
* Enter X intercept: 2
```



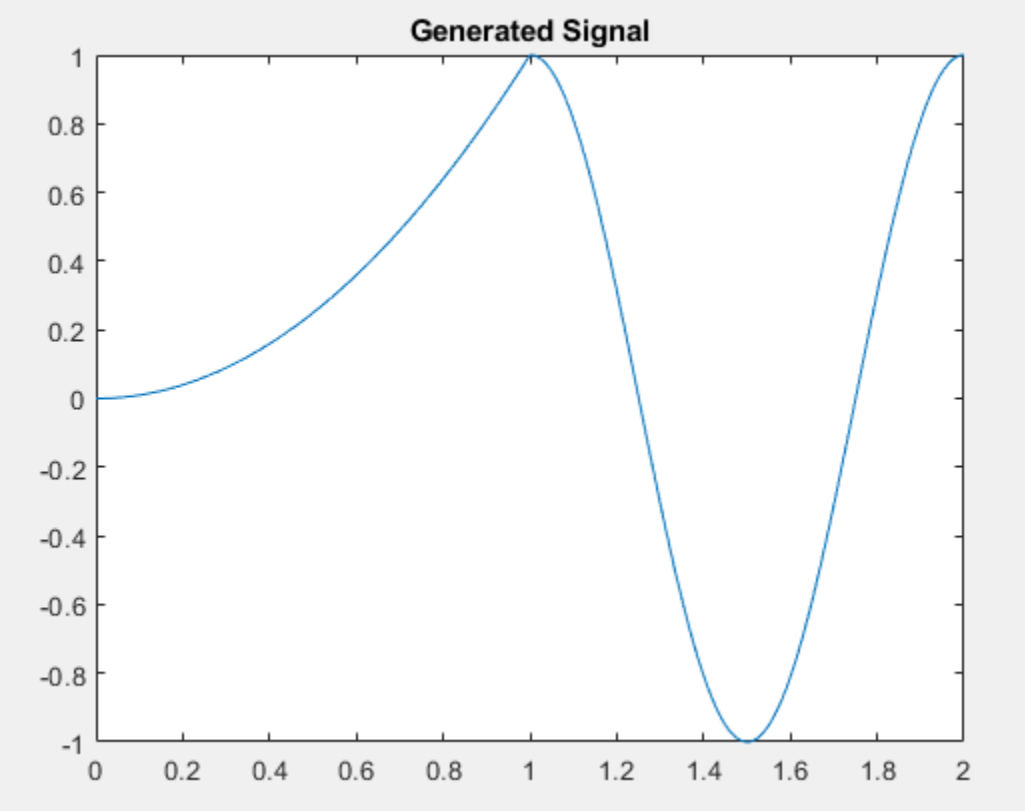
Operations: Amplitude Scaling by 4 and Expanding by 7

```
* Enter the number of operations to be performed (0 for NONE): 2
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 1
* Enter scale: 4
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 4
* Enter the expanding value: 7
*** Thanks ! ***
```



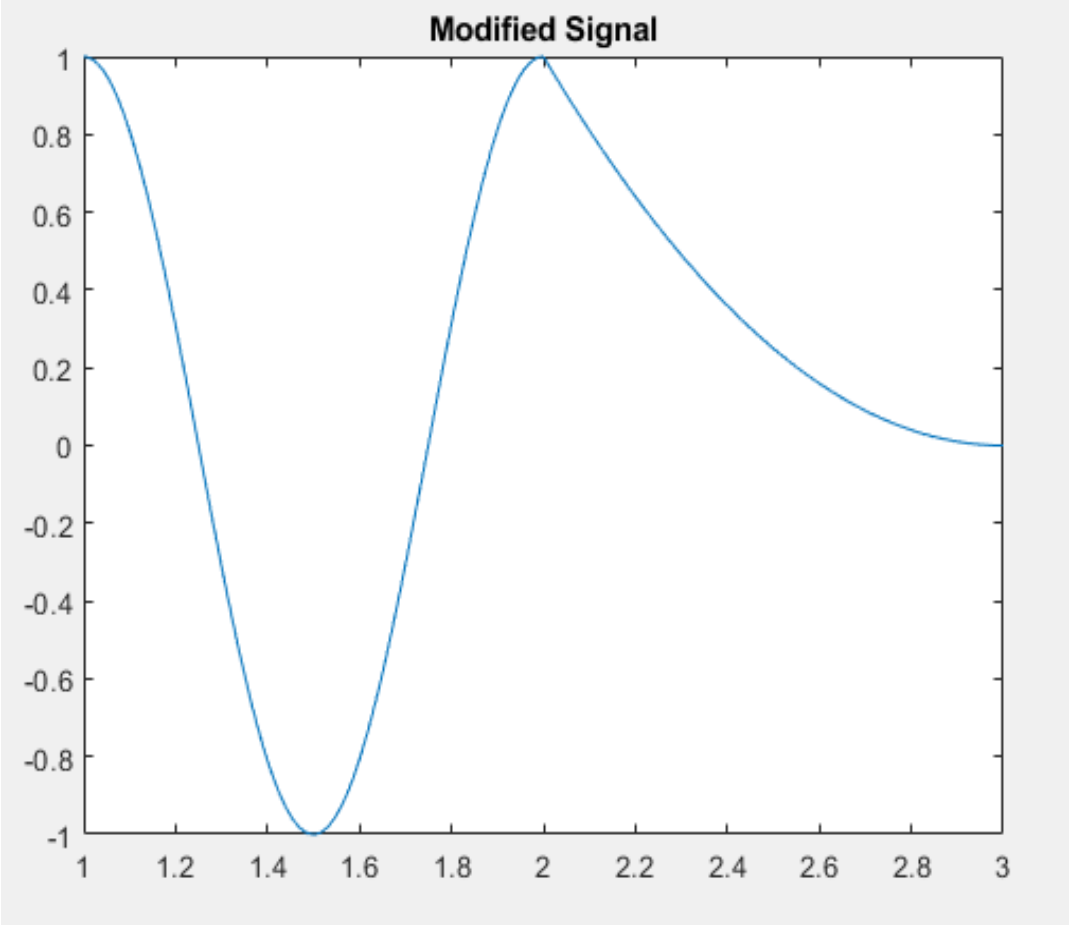
Test Case #9

```
** General Signal Generator **
* Enter the sampling frequency: 1000
* Enter the start time: 0
* Enter the end time: 2
* Enter the number of breakpoints: 1
* Signal
* Enter the Breakpoint position: 1
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 3
* Enter the order: 2
* Note: Enter the coefficient of the greatest power first
* Enter the coefficient: 1
* Enter the coefficient: 0
* Enter the intercept: 0
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 5
* Enter the Sinusoidal amplitude: 1
* Enter the frequency: 1
* Enter the phase in degrees: 90
```



Operations: Time Reversal and Time shift by -3

```
* Enter the number of operations to be performed (0 for NONE): 2
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 2
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 3
* Enter shift value: -3
*** Thanks ! ***
```

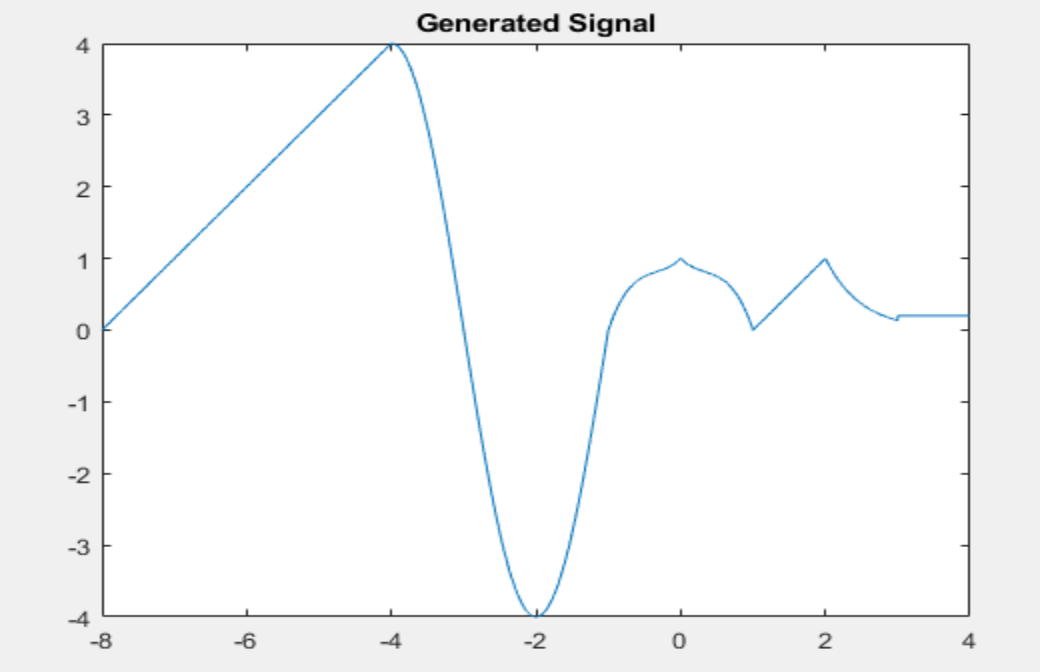


Test Case #10

```
** General Signal Generator **
* Enter the sampling frequency: 1000
* Enter the start time: -8
* Enter the end time: 4
* Enter the number of breakpoints: 6
* Signal
* Enter the Breakpoint position: -4
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 2
* Enter the Ramp slope: 1
* Enter X intercept: -8
* Signal
* Enter the Breakpoint position: -1
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 5
* Enter the Sinusoidal amplitude: 4
* Enter the frequency: 0.25
* Enter the phase in degrees: 90
* Signal
* Enter the Breakpoint position: 0
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 3

* Enter the order: 3
* Note: Enter the coefficient of the greatest power first
* Enter the coefficient: 2
* Enter the coefficient: 2
* Enter the coefficient: 1
* Enter the intercept: 1
* Signal
* Enter the Breakpoint position: 1
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 3
* Enter the order: 3
* Note: Enter the coefficient of the greatest power first
* Enter the coefficient: -2
* Enter the coefficient: 2
* Enter the coefficient: -1
* Enter the intercept: 1
* Signal
* Enter the Breakpoint position: 2
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 2
* Enter the Ramp slope: 1
* Enter X intercept: 1

* Signal
* Enter the Breakpoint position: 2.8
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 4
* Enter the Exponential amplitude: 54.6
* Enter the exponent: -2
* Signal
* Signals: (1- DC) (2- Ramp) (3- General Order Polynomial) (4- Exponential) (5- Sinusoidal)
* Enter your choice (ex: 1): 1
* Enter the DC amplitude: 0.2
```



Operations: Time Reversal and Amplitude Scaling by 2

```
* Enter the number of operations to be performed (0 for NONE): 2
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 2
* Operations: (1- Amplitude scaling) (2- Time reversal) (3- Time shift) (4- Expanding) (5- Compressing)
* Enter your choice: 1
* Enter scale: 2
*** Thanks ! ***
```