

Select a file to view details

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»

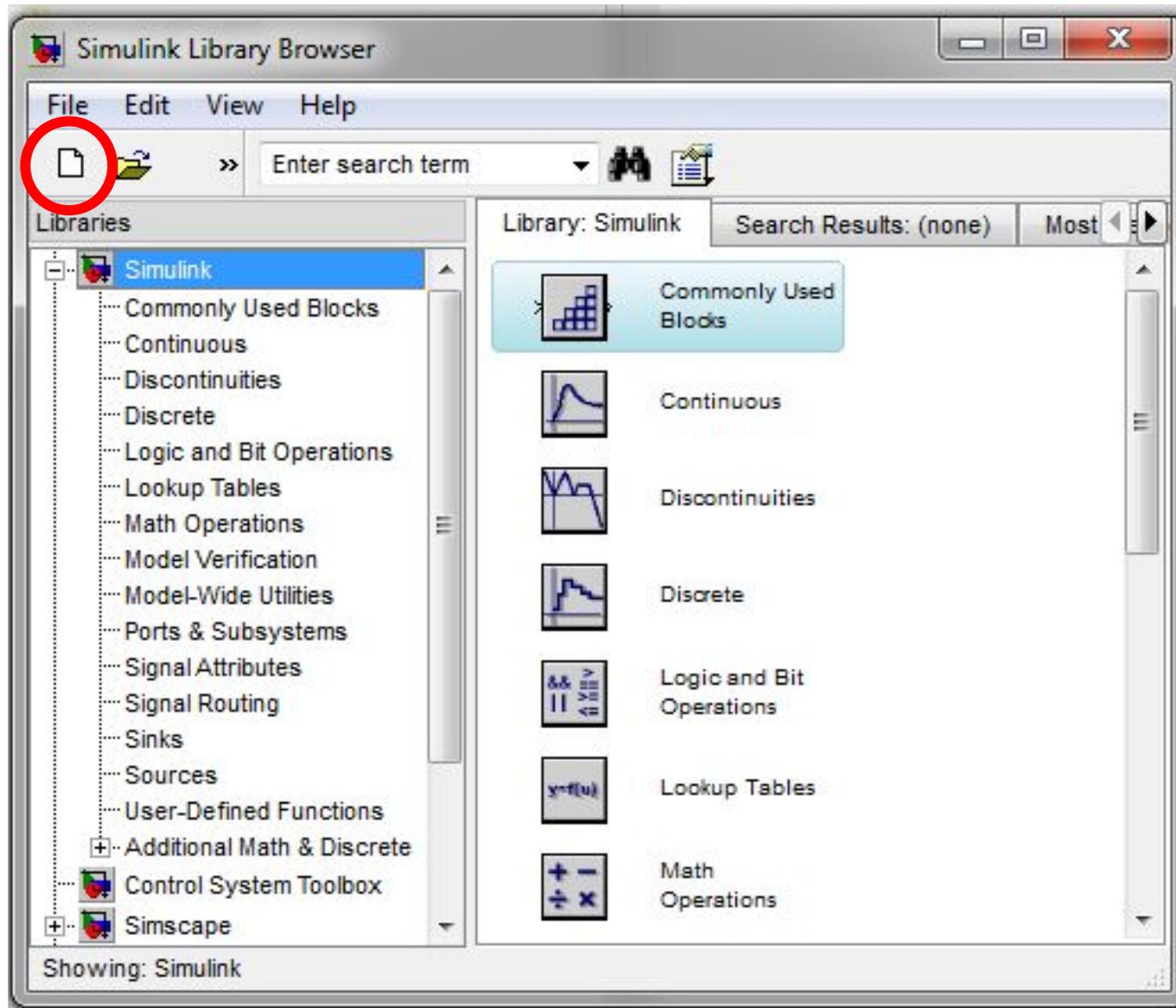
Select data to...

Name ▲ Value

```
-- 12.02.2019 13:46 -->
-- 19.02.2019 14:26 -->
-- 26.02.2019 13:40 -->
-- 05.03.2019 13:49 -->
-- 12.03.2019 13:36 -->
-- 19.03.2019 13:46 -->
-- 26.03.2019 13:33 -->
-- 26.03.2019 14:33 -->
-- 09.04.2019 13:31 -->
-- 16.04.2019 13:32 -->
-- 23.04.2019 13:46 -->
-- 23.04.2019 14:41 -->
-- 30.04.2019 13:40 -->
-- 08.05.2019 17:11 -->
-- 14.05.2019 13:47 -->
-- 21.05.2019 13:49 -->
-- 21.05.2019 15:42 -->
-- 28.05.2019 13:33 -->
-- 04.06.2019 12:58 -->
-- 04.06.2019 14:21 -->
-- 04.06.2019 14:30 -->
-- 19.06.2019 13:03 -->
  DPT_data
-- 03.09.2019 14:54 -->
```



*Simulink library browser*



Current Folder: C:\Users\student.ECAO2\Docum

Shortcuts How to Add What's New

Current Folder

<< MATLAB >>

Name

Simulink Library Browser

File Edit View Help

Enter search term

Libraries

- Simulink
  - Commonly Used Blocks
  - Continuous
  - Discontinuities
  - Discrete
  - Logic and Bit Operations
  - Lookup Tables
  - Math Operations
  - Model Verification
  - Model-Wide Utilities
  - Ports & Subsystems
  - Signal Attributes
  - Signal Routing
  - Sinks
  - Sources
  - User-Defined Functions
  - Additional Math & Discrete
- Control System Toolbox
- Simscape

Showing: Simulink

Library: Simulink Search Results: (none) Most

- Commonly Used Blocks
- Continuous
- Discontinuities
- Discrete
- Logic and Bit Operations
- Lookup Tables
- Math Operations

untitled

File Edit View Simulation Format Tools Help

10.0 Normal

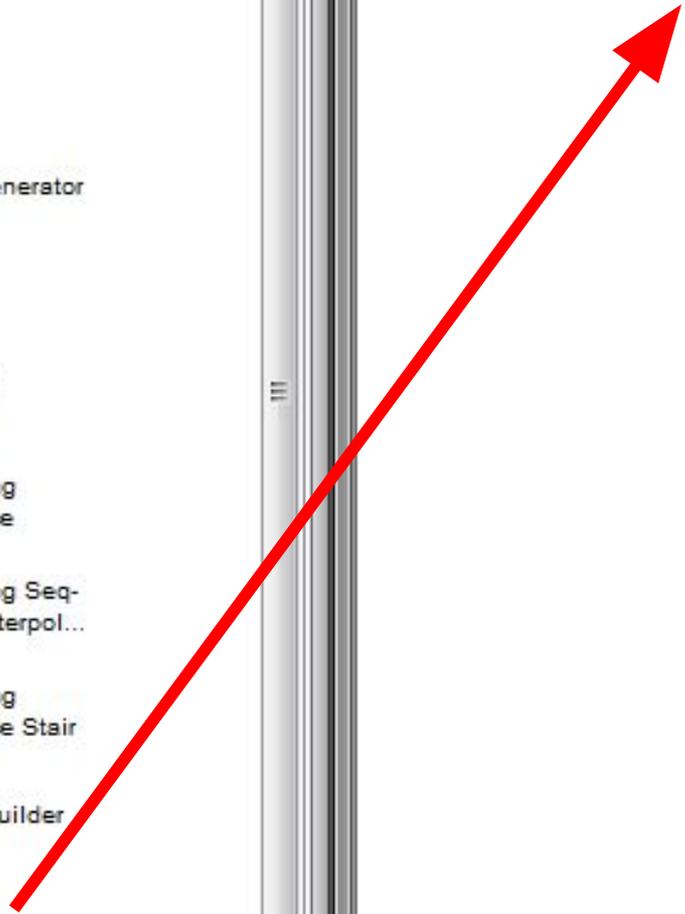
Ready 100% ode45

tails

Select a file to view details

- Signal Routing
- Sinks
- Sources**
- User-Defined Functions
- Additional Math & Discrete
- Control System Toolbox
- Simscape
- Simulink 3D Animation
- Simulink Coder
- Simulink Extras
- Simulink Verification and Vali...
- Stateflow

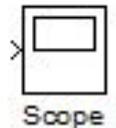
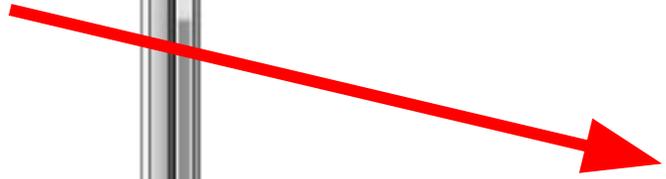
- Constant
- untitled.mat From File
- simIn From Workspace
- Ground
- In1
- Pulse Generator
- Ramp
- Random Number
- Repeating Sequence
- Repeating Sequence Interpol...
- Repeating Sequence Stair
- Signal Builder
- Signal Generator
- Sine Wave**



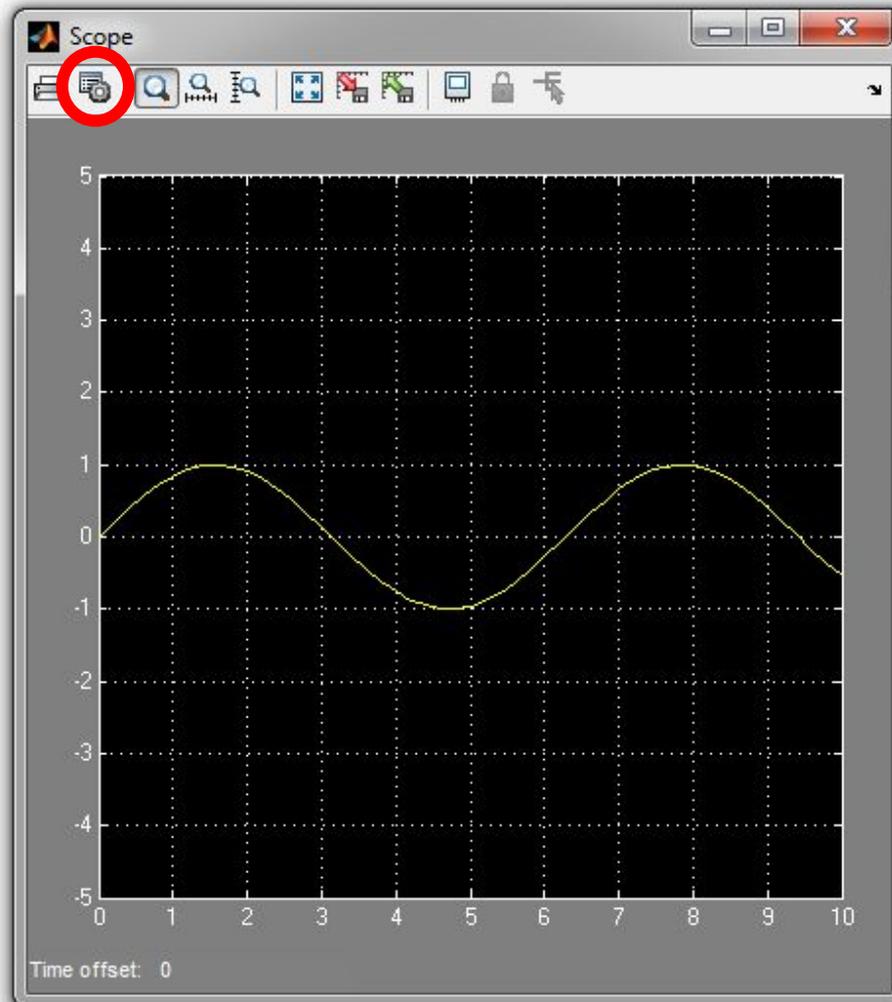
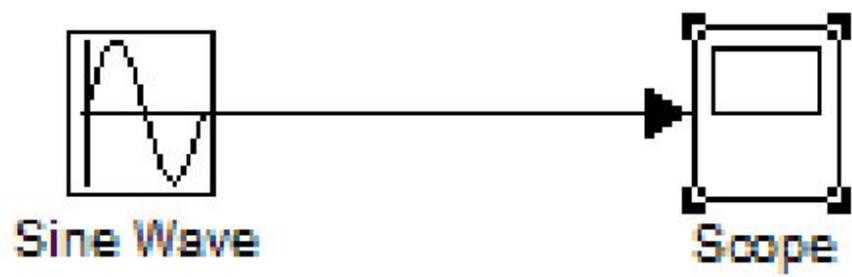
- Math Operations
- Model Verification
- Model-Wide Utilities
- Ports & Subsystems
- Signal Attributes
- Signal Routing
- Sinks**
- Sources
- User-Defined Functions
- + Additional Math & Discrete
- + Control System Toolbox
- + Simscape
- + Simulink 3D Animation
- + Simulink Coder
- + Simulink Extras
- + Simulink Verification and Vali...
- + Stateflow



- Scope
- STOP Stop Simulation
- Terminator
- untitled.mat To File
- simout To Workspace
- XY Graph









# 'Scope' parameters



General

History

Style



Limit data points to last:

5000



Save data to workspace

Variable name:

ScopeData

Format:

Structure with time

OK

Cancel

Help

Apply



# 'Scope' parameters



General

History

Style



Limit data points to last

5000



Save data to workspace

Variable name:

ScopeData

Format:

Structure with time

OK

Cancel

Help

Apply



# 'Scope' parameters



General

History

Style

Figure color:



Axes colors:



Properties for line: 1



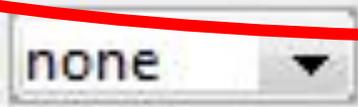
Line:



0.5



Marker:



OK

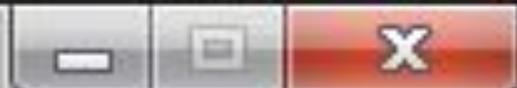
Cancel

Help

Apply



# 'Scope' parameters



General

History

Style

Figure color:



Axes colors:



Properties for line:

1

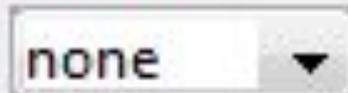
2.0

Line:



Marker:

none

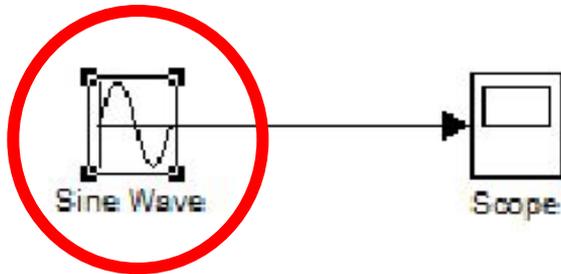


OK

Cancel

Help

Apply



### Source Block Parameters: Sine Wave

Sine Wave

Output a sine wave:

$$O(t) = \text{Amp} * \text{Sin}(\text{Freq} * t + \text{Phase}) + \text{Bias}$$

Sine type determines the computational technique used. The parameters in the two types are related through:

Samples per period =  $2 * \pi / (\text{Frequency} * \text{Sample time})$

Number of offset samples =  $\text{Phase} * \text{Samples per period} / (2 * \pi)$

Use the sample-based sine type if numerical problems due to running for large times (e.g. overflow in absolute time) occur.

Parameters

Sine type:

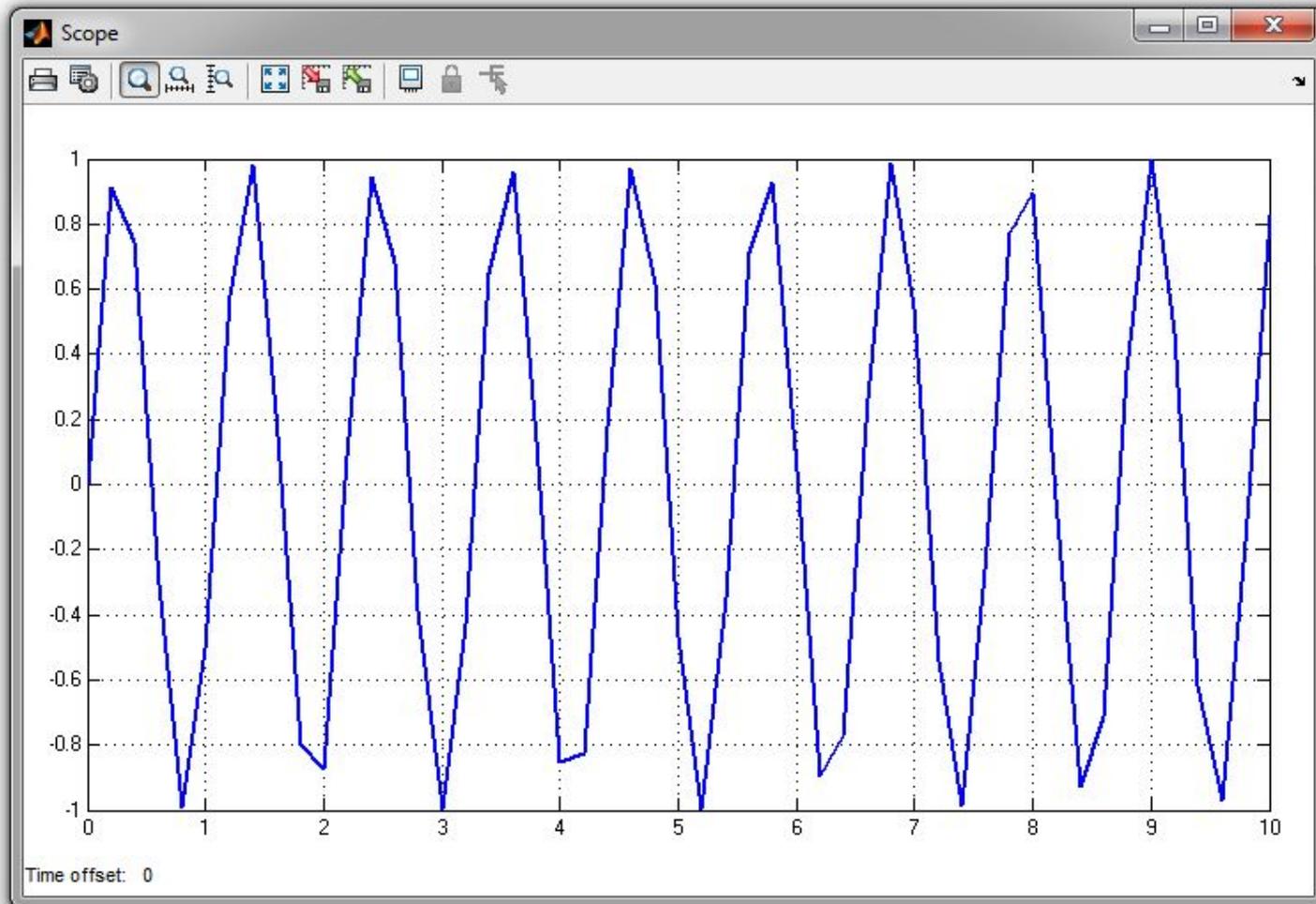
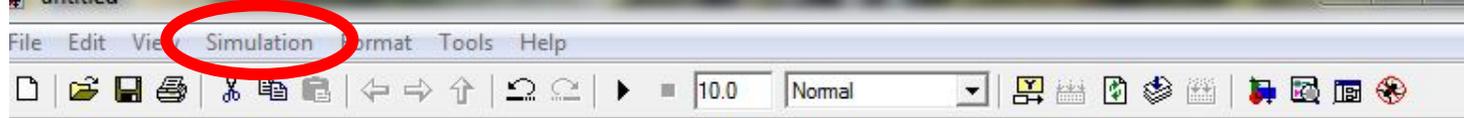
Time (t):

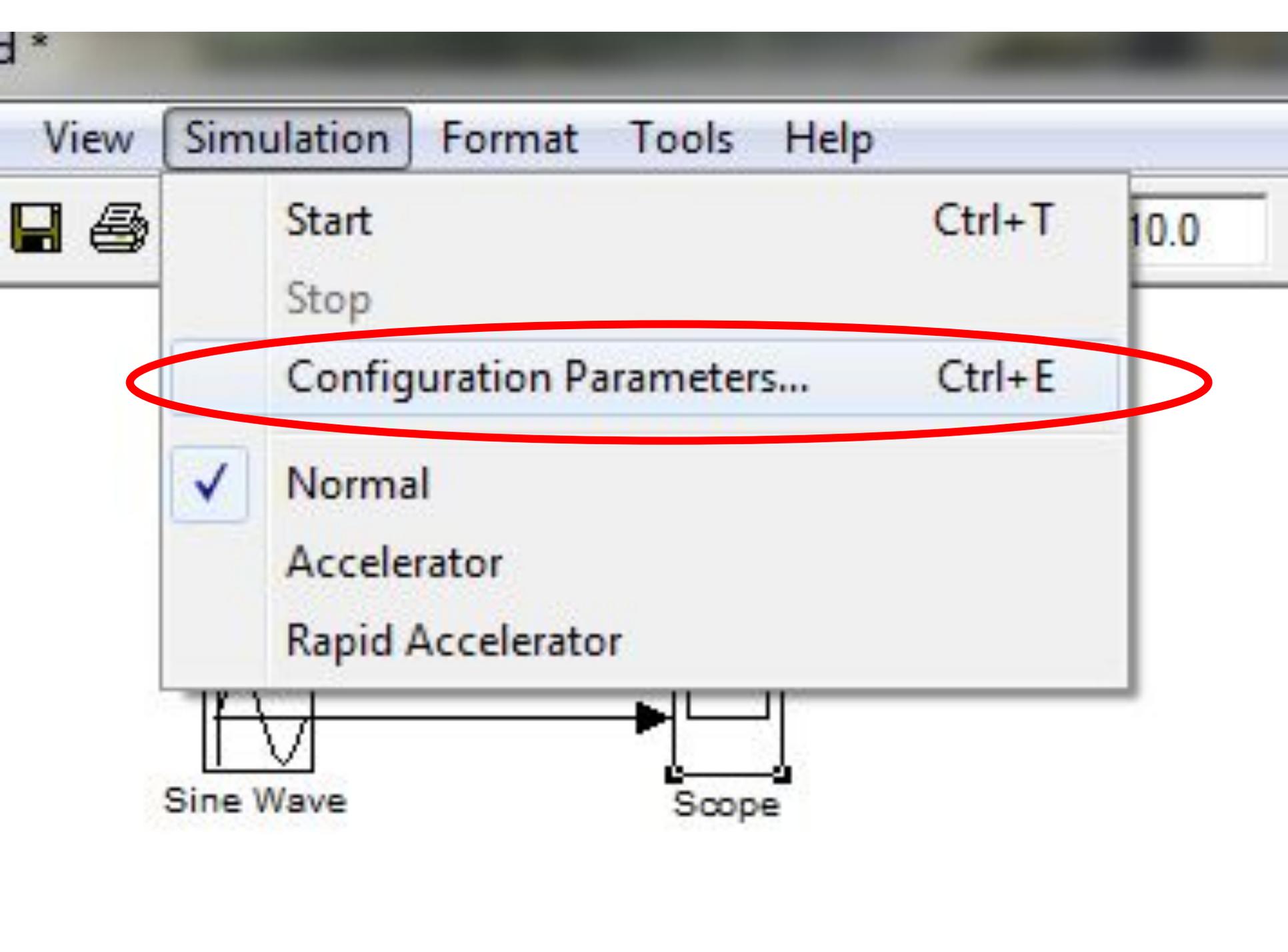
Amplitude:

Bias:

Frequency:

Phase (rad):





View

Simulation

Format

Tools

Help

Start

Ctrl+T

Stop

Configuration Parameters...

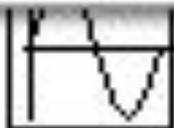
Ctrl+E



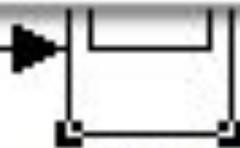
Normal

Accelerator

Rapid Accelerator



Sine Wave



Scope

- Select:
- Solver
- Data Import/Export
- Optimization
- Diagnostics
- Hardware Implementation
- Model Referencing
- Simulation Target

Simulation time  
Start time: 0.0 Stop time: 10.0

Solver options  
Type: Variable-step Solver: ode45 (Dormand-Prince)  
Max step size: auto Relative tolerance: 1e-3  
Min step size: auto Absolute tolerance: auto  
Initial step size: auto Shape preservation: Disable All  
Number of consecutive min steps: 1

Tasking and sample time options  
Tasking mode for periodic sample times: Auto  
 Automatically handle rate transition for data transfer  
 Higher priority value indicates higher task priority

Zero-crossing options  
Zero-crossing control: Use local settings Algorithm: Nonadaptive  
Time tolerance: 10\*128\*eps Signal threshold: auto  
Number of consecutive zero crossings: 1000

Simulation time

Start time: 0.0

Stop time: 10.0

Solver options

Type: Variable-step

Solver: ode45 (Dormand-Prince)

Max step size: 1/10000

Relative tolerance: 1e-3

Min step size: auto

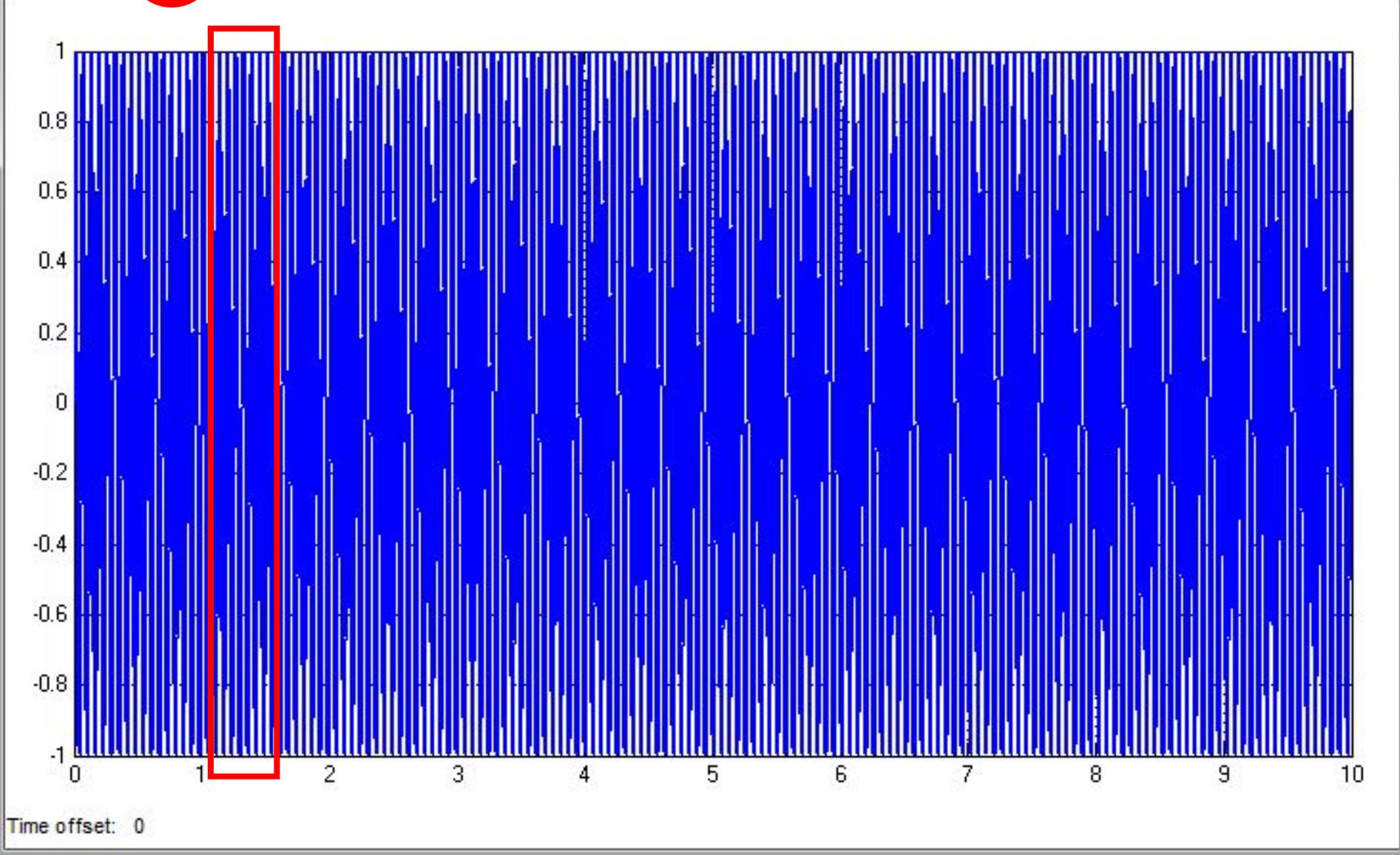
Absolute tolerance: auto

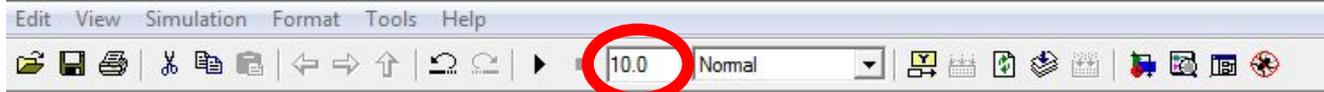
Initial step size: auto

Shape preservation: Disable All

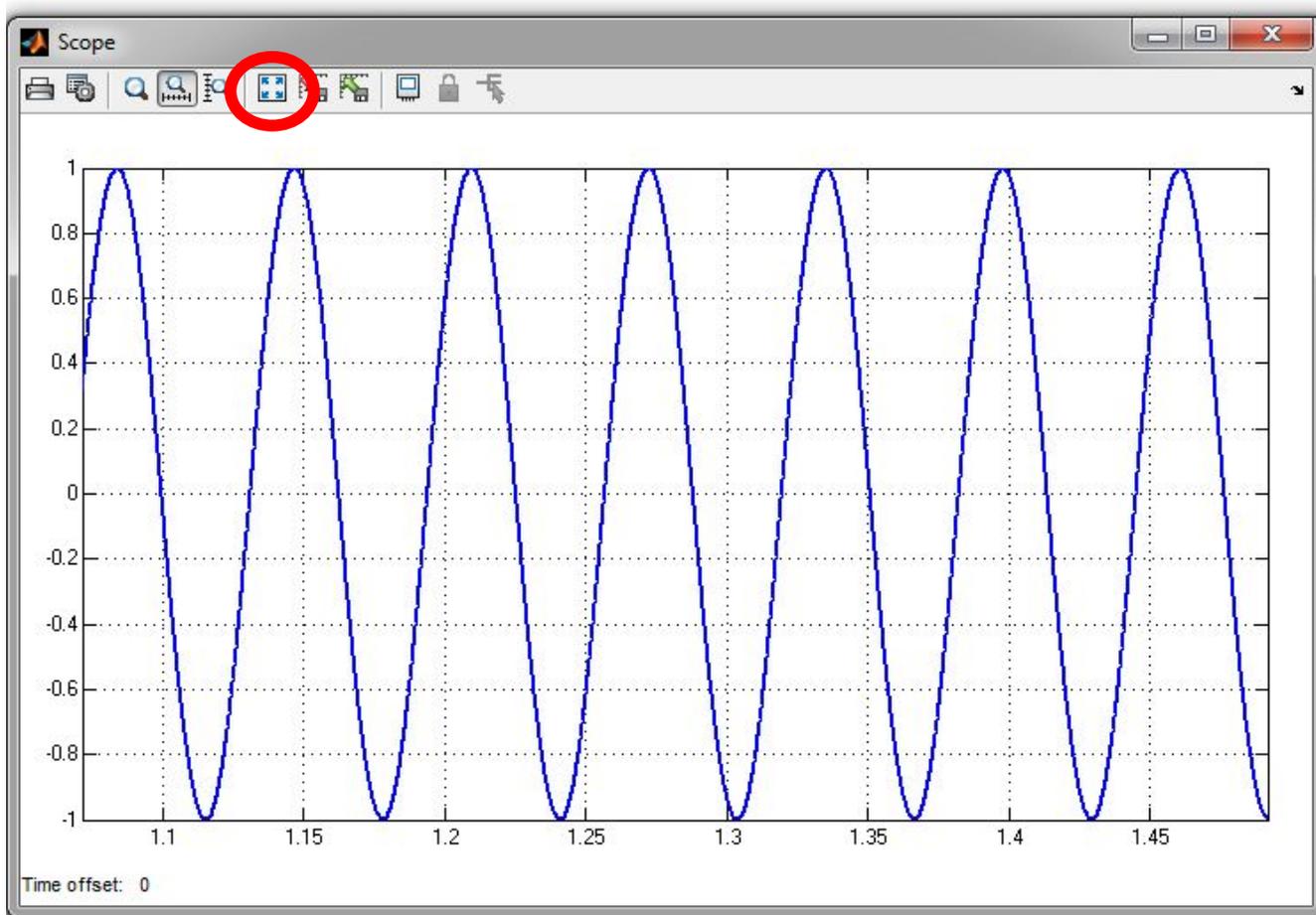
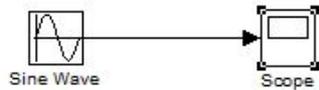
Number of consecutive min steps:

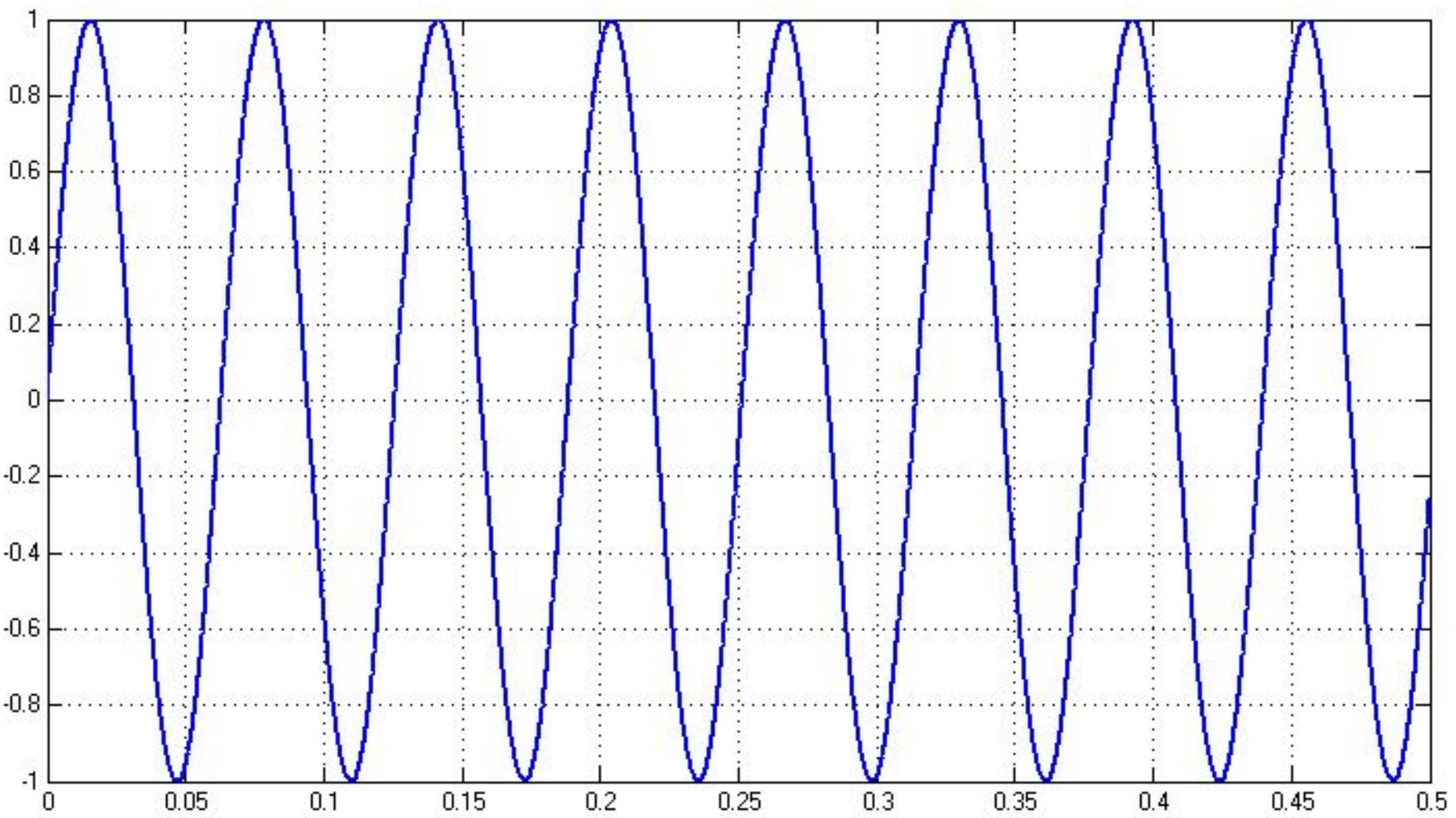
1



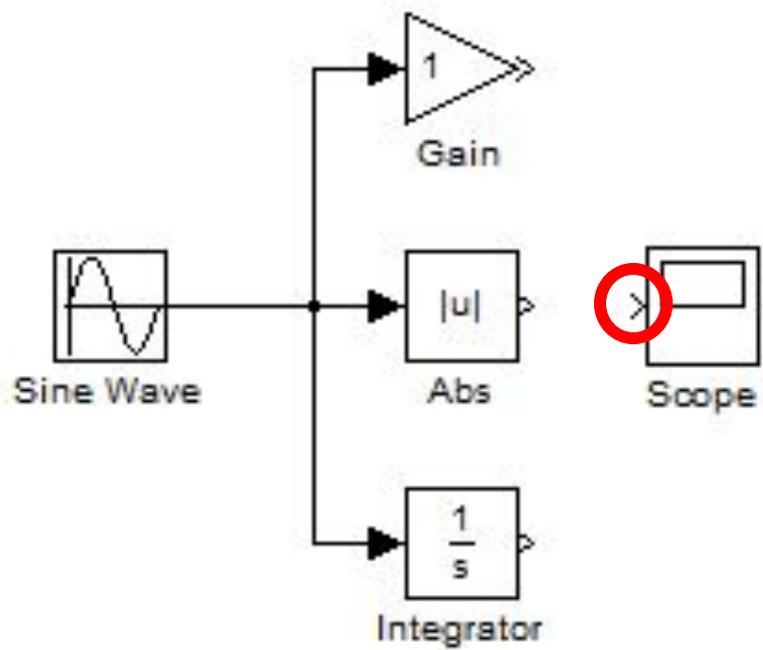


0.5





Time offset: 0





# 'Scope' parameters



General

History

Style

## Axes

Number of axes: 3

Floating Scope

Time range: auto

Legends

Tick labels: bottom axis only

## Sampling

Decimation

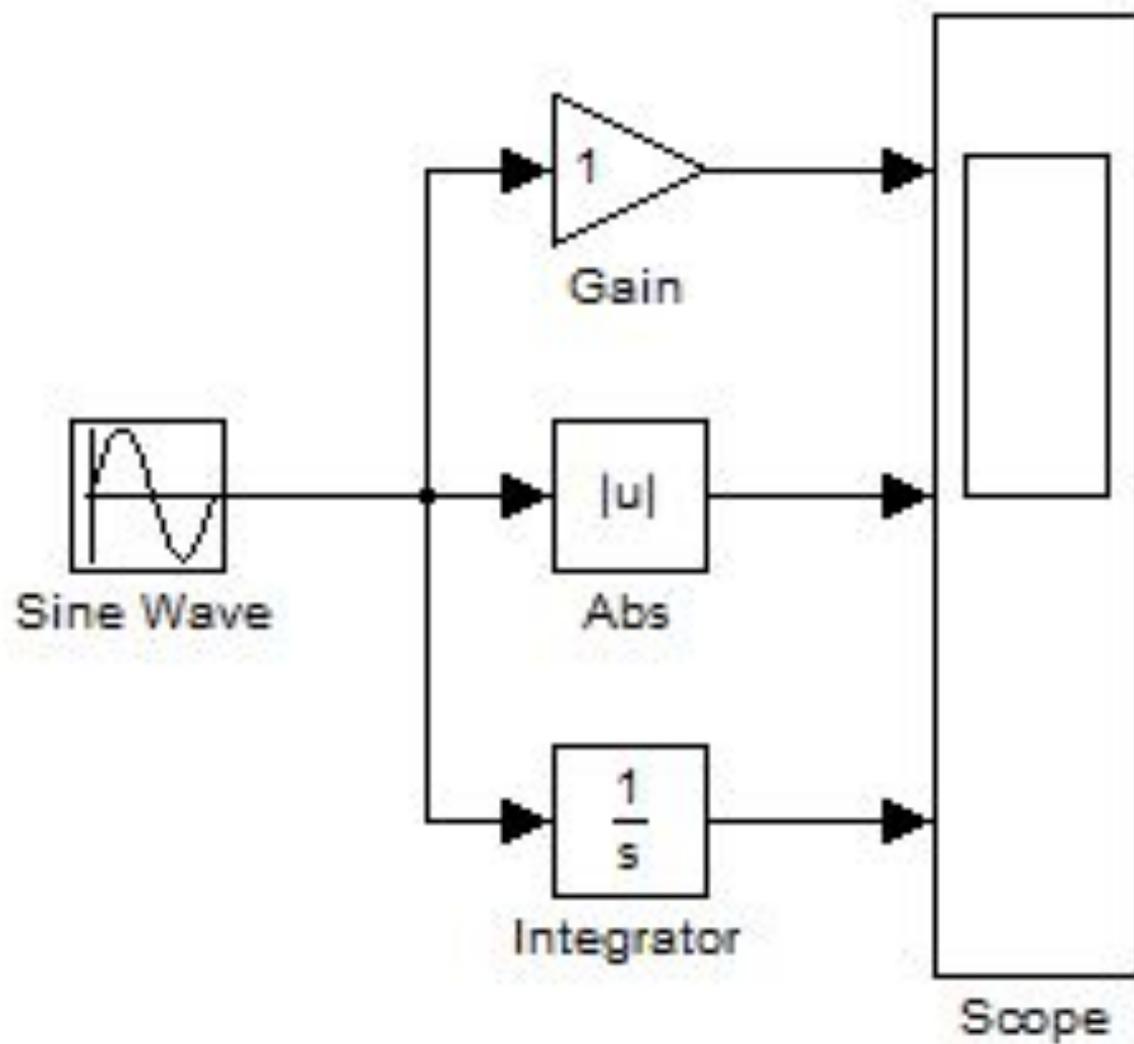
1

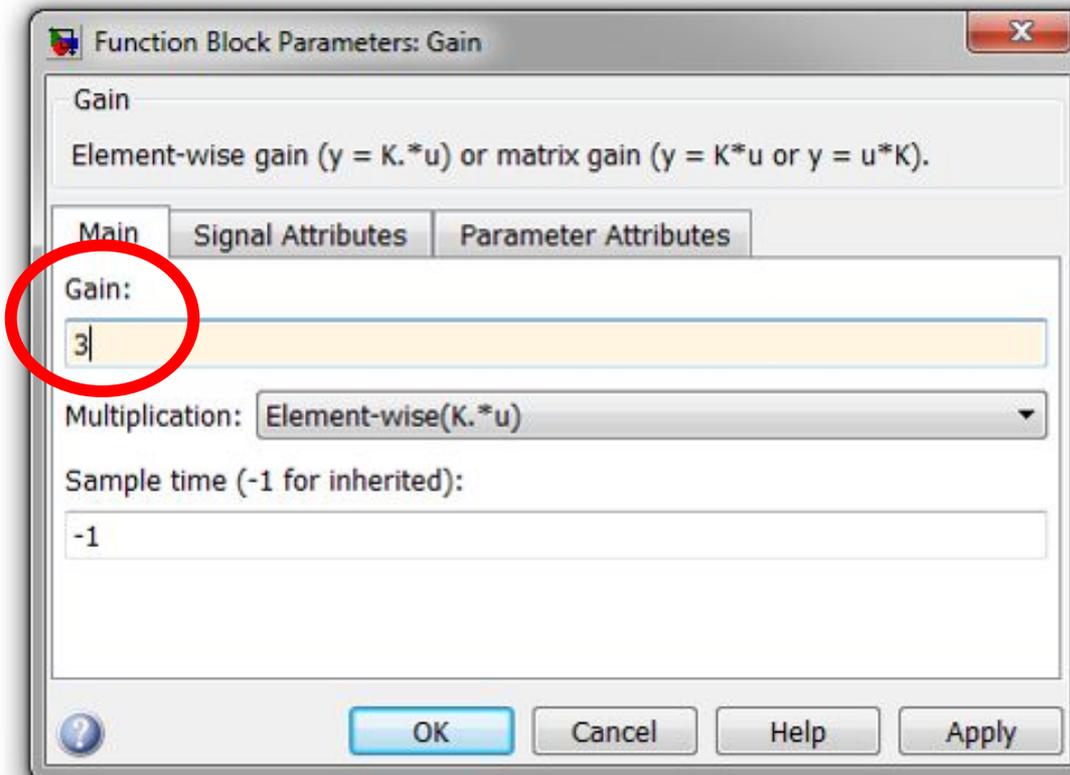
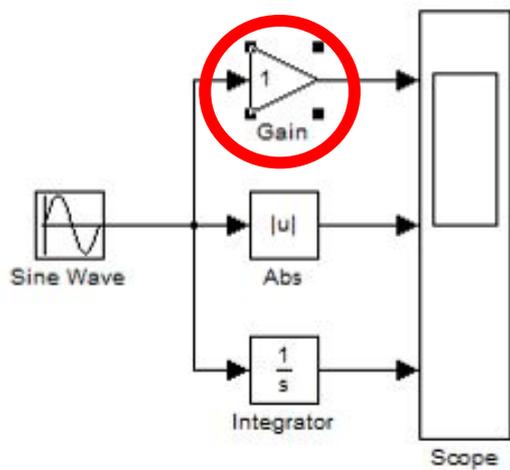
OK

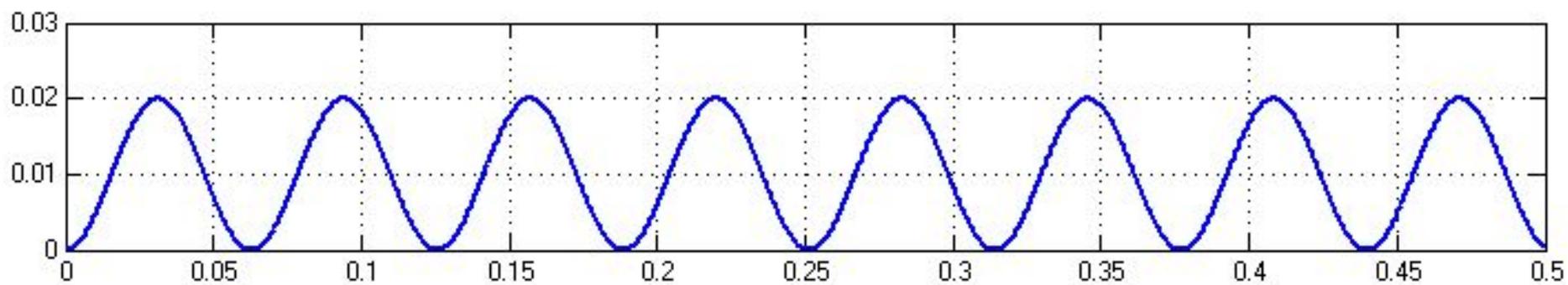
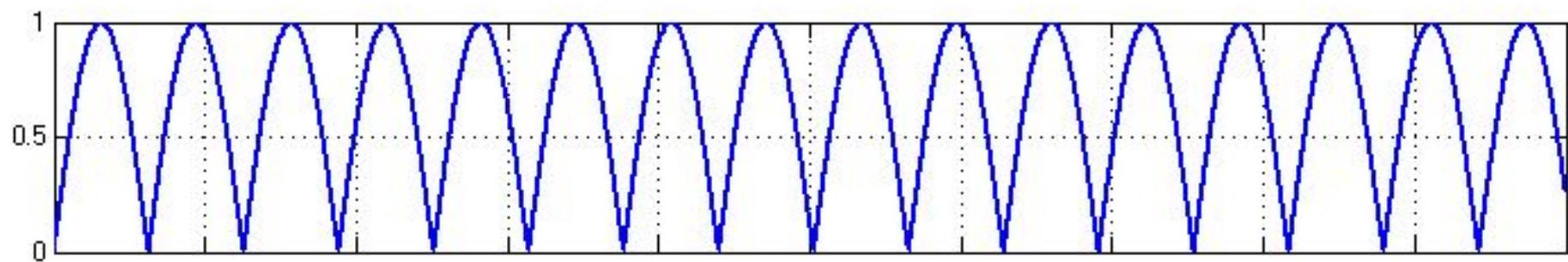
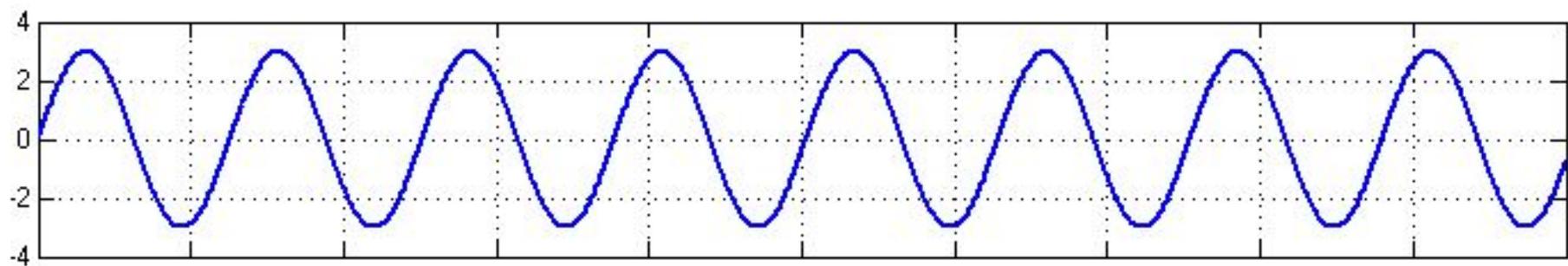
Cancel

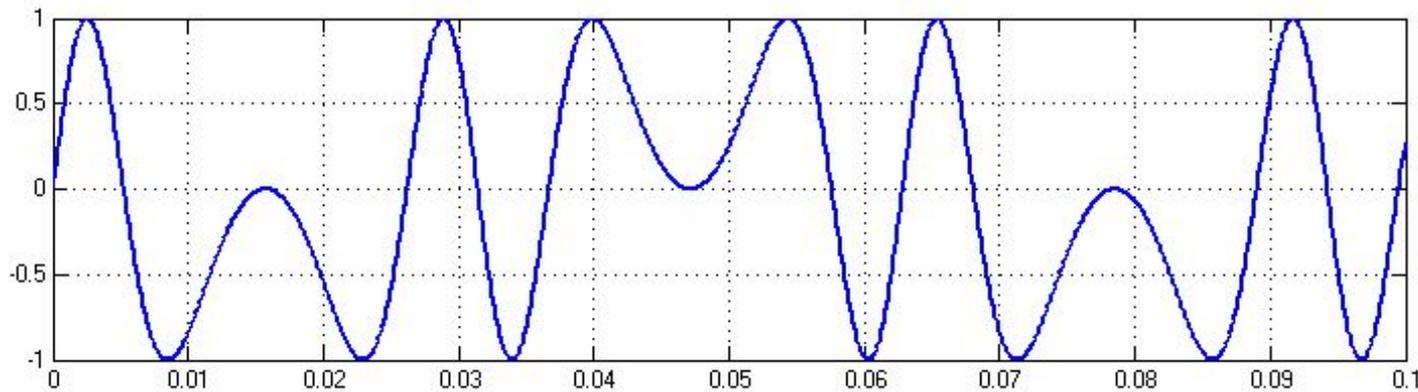
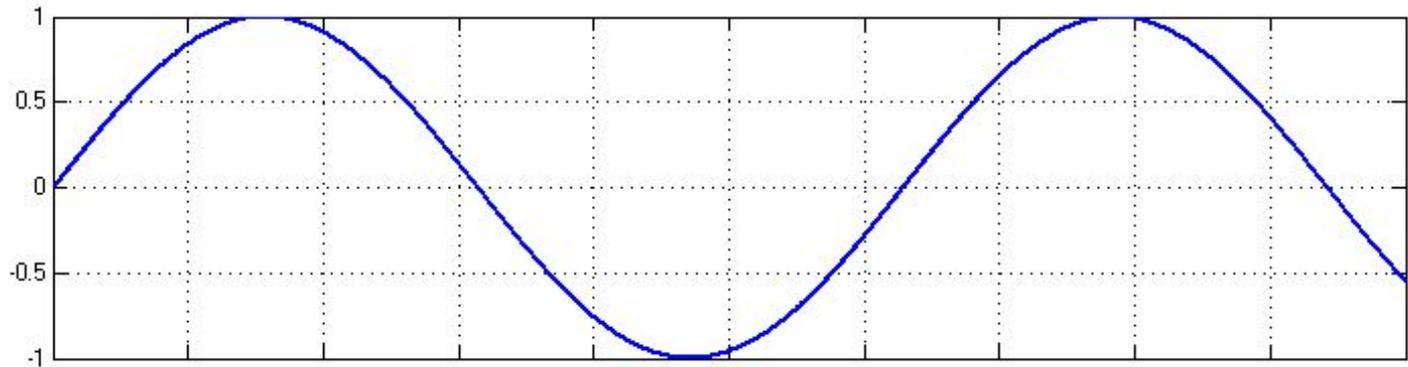
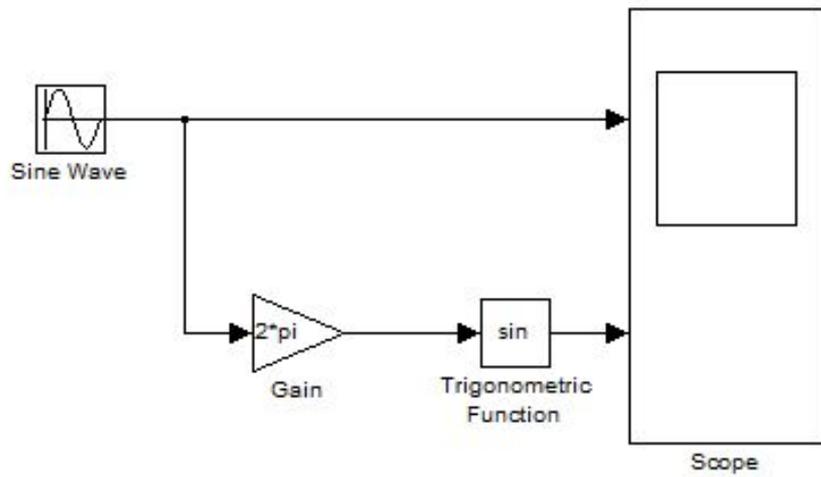
Help

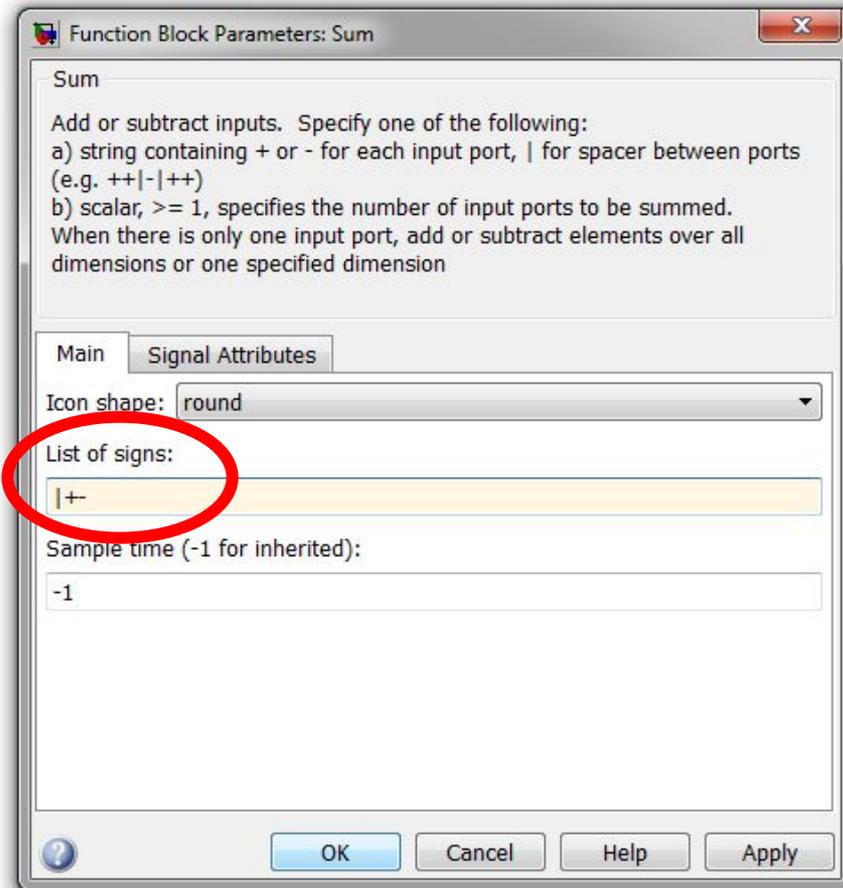
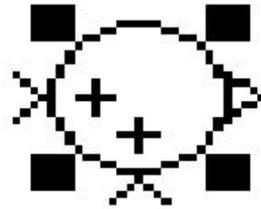
Apply

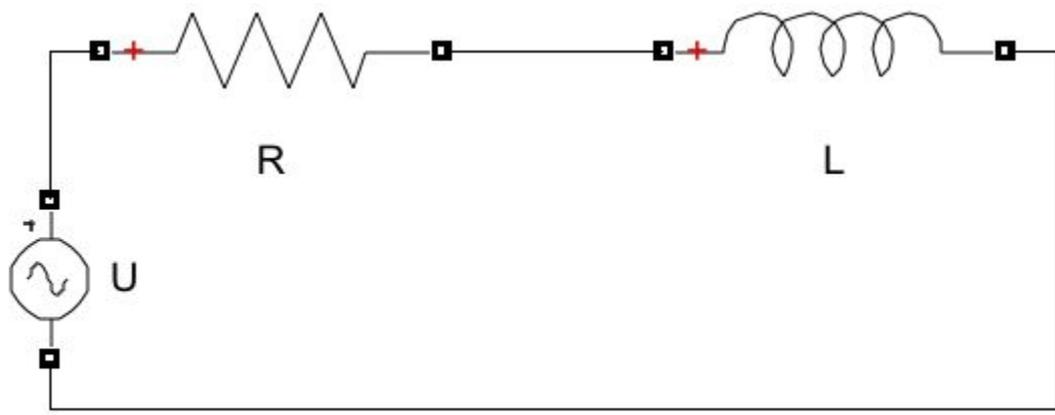




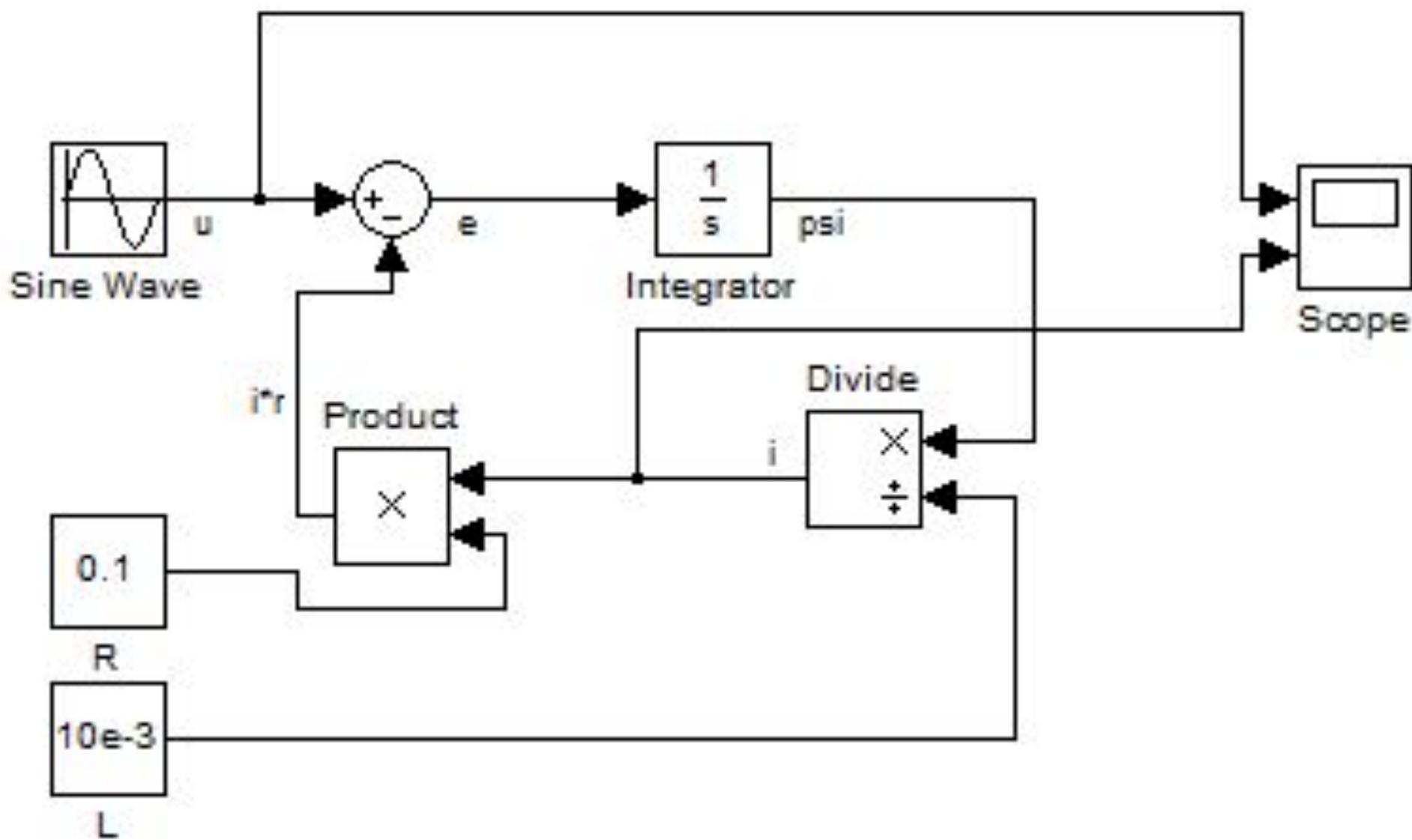


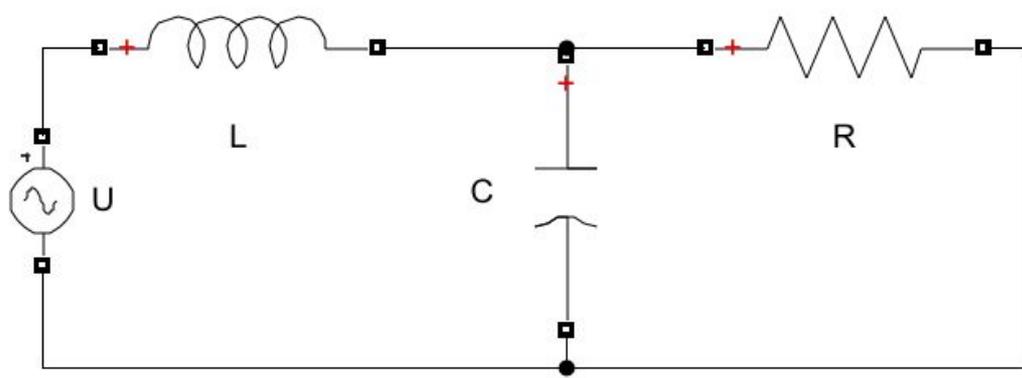




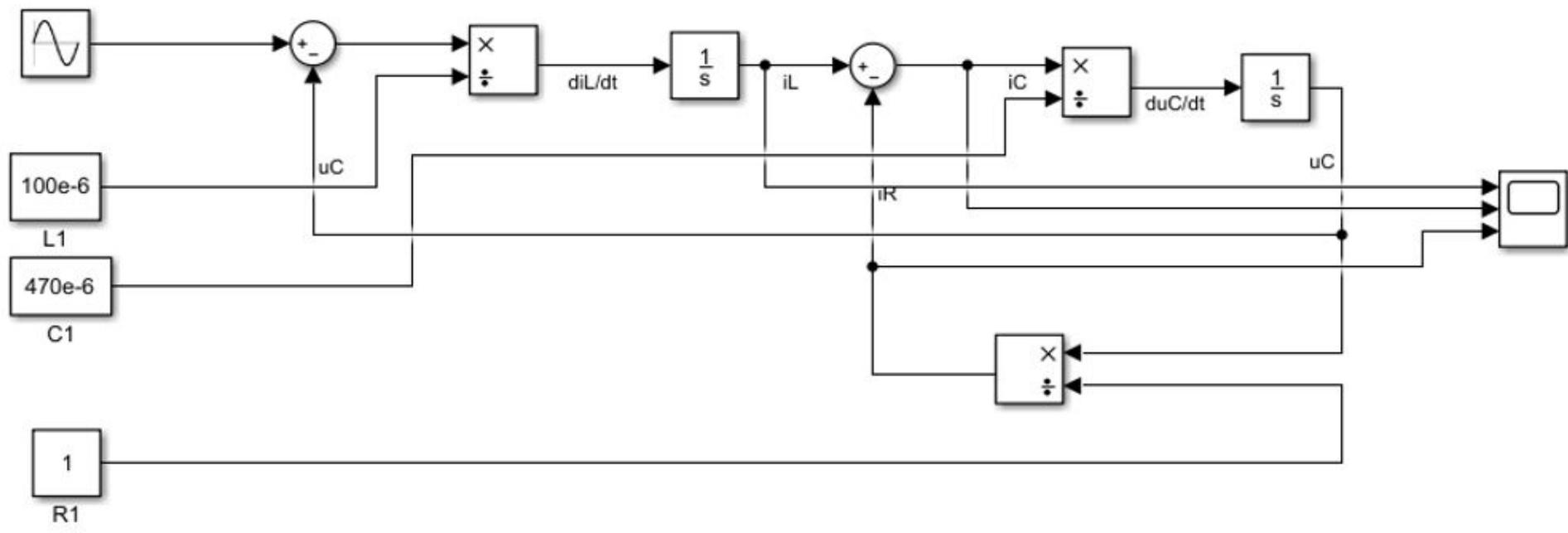


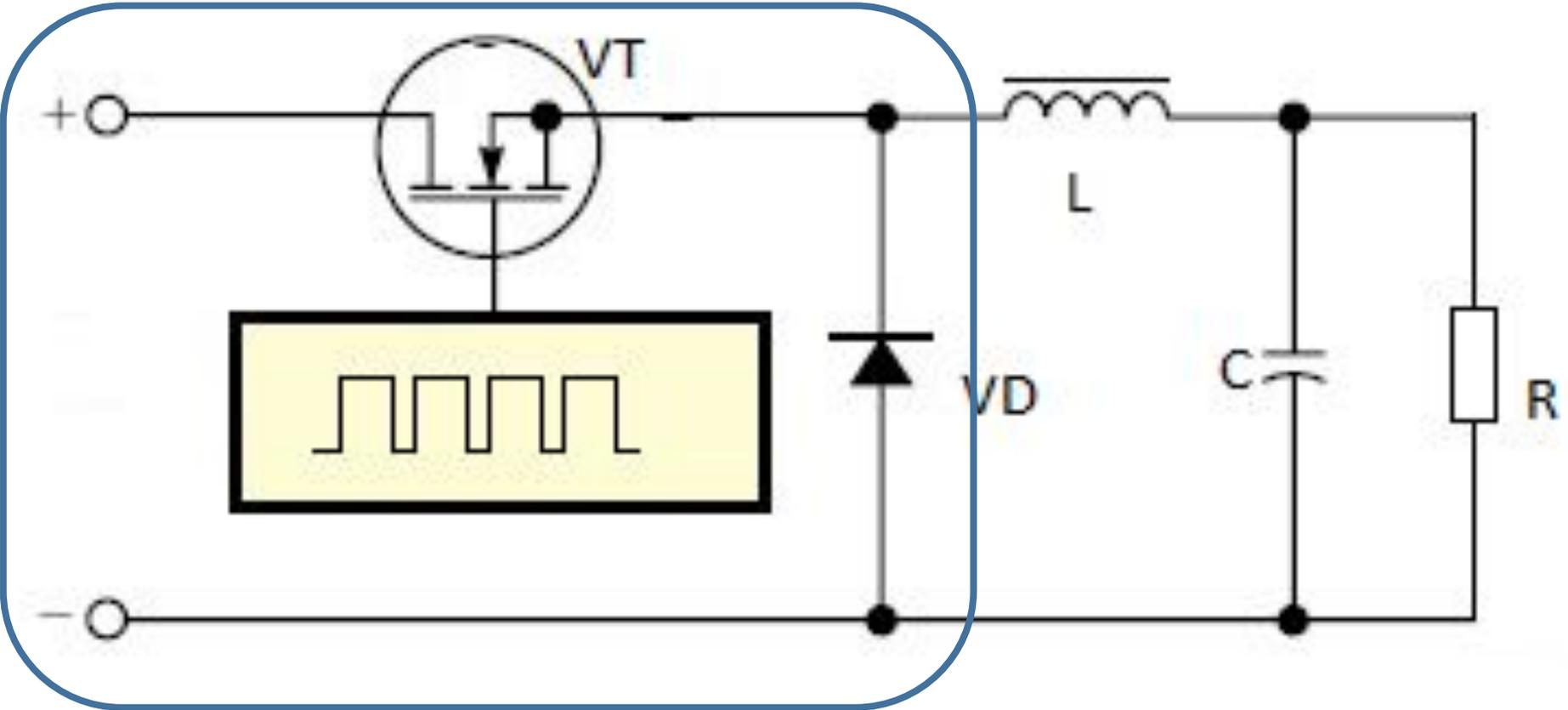
$$u(t) = e(t) + i(t) \cdot R$$

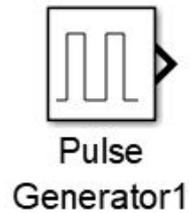




$$u(t) = e(t) + i(t) \cdot R$$







Source Block Parameters: Pulse Generator1

Pulse Generator

Output pulses:

```
if (t >= PhaseDelay) && Pulse is on
  Y(t) = Amplitude
else
  Y(t) = 0
end
```

Pulse type determines the computational technique used.

Time-based is recommended for use with a variable step solver, while Sample-based is recommended for use with a fixed step solver or within a discrete portion of a model using a variable step solver.

Parameters

Pulse type: Time based

Time (t): Use simulation time

Amplitude:  
50

Period (secs):  
5e-4

Pulse Width (% of period):  
50

Phase delay (secs):  
0

Interpret vector parameters as 1-D

OK Cancel Help Apply

№ вар.	1	2	3	4	5	6			
$U_{in}$ , В	30	40	50	30	40	50			
$f$ , Гц	350	300	250	250	300	350			
$R_H$ , Ом	3.3	3.9	4.7	5.6	6.8	8.2			
№ вар.	7	8	9	10	11	12	13	14	15
$U_{in}$ , В	60	70	80	60	70	80	90	100	110
$f$ , Гц	350	300	250	250	300	350	350	300	250
$R_H$ , Ом	3.3	3.9	4.7	5.6	6.8	8.2	5.6	6.8	8.2

$U_{in}$  – входное напряжение регулятора;  $f$  – частота переключения ключа;  
 $R$  – сопротивление нагрузки

**Для всех вариантов  $D = 0,5$**

$$L \geq \frac{R_H}{2f} (1 - D_{min}).$$

$D_{min}$  – минимальное значение  
коэффициента заполнения равное 0,1

$$2\pi \cdot f \cdot C_{out} R_H \gg 1.$$