To get started with Simulink, type Simulink in the command window as shown below:

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It will open the Simulink page as shown below:

Simulink Start Page				- ×			
SIMULINK®	New Examples						
Open Recent	Search All V C > My Templates Learn Mo						
Learn Simulink Onramp Stateflow Onramp	✓ Simulink Image: Simulink	Blank Subsystem	Blank Library	With the second seco			
Starting Simulink	Show more DSP System Toolbox						

You can also make use of Simulink icon present in MATLAB to get started with Simulink:



Click on the Blank Model and you will get a Simulink library browser that can be used to create your own model. The screen for Blank model is as follows:

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Model Brows		operty Inspector

Click on Library and it will display you the Simulink library as shown below:



Here is an example of Math operations library list:



. . . .

Given below is an example of Logic and Bit Operations:



Sinks

The blocks in this category help to display or export signal data blocks such as Scope and To Workspace. The following screen will appear on your computer:



Sources

It helps to generate or import data blocks. For example, sine wave. The following screen will appear on your computer:



MATLAB Simulink — Build & Simulate Model





MATLAB Simulink — Starting Simulink

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Now we want to display the output of the signal, so let us use a Scope block from sinks library as shown below:



Now select and drag the Scope block inside your model workspace.



Go to settings icon and change the input parameter from 1 to 4 as shown below:

Configura	Configuration Properties: Scope – ×						
Main	Time	Display	Logging				
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We would like to change the frequency of each sine wave to a different one, so that we get a signal graph of different frequencies. So right click on sine wave and open the Sine wave block parameters as

shown below:

Block Parameters: Sine Wave - ×
Sine Wave
Output a sine wave:
O(t) = Amp*Sin(Freq*t+Phase) + Bias
Sine type determines the computational technique used. The parameters in the two types are related through:
Samples per period = 2*pi / (Frequency * Sample time)
Number of offset samples = Phase * 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 based 🔹
Time (t): Use simulation time
Amplitude:
1
Bias:
0
Frequency (rad/sec):
3
Phase (rad):
0

Click on the Run button as shown below to see the sine wave.

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Open the scope block parameters to see the sine wave as shown below:





MATLAB Simulink — Logic Gates Model

Select the constant block, we need two constant block, a logical operator and a constant. The blocks will look as shown below:









MATLAB Simulink — Solving Mathematical Equation

The equation is given below:

y(t) = 2Sin(t) + 5Sin(2t) - 10





The equation can be solved by integrating dy/dt to the following:

$$y(t) = \int (4\sin 2t - 10y(t)) dt$$





exercise

- Example 1: Simple Linear Equation
- Model: y = 3x + 2
 Blocks: Constant, Gain, Sum, Display
- Example 2: Quadratic Equation
- Model: y = x² + 2x + 1
 Blocks: Constant, Product, Gain, Sum
- Example 3: Sine Function
- Model: y = sin(x)
 Blocks: Trigonometric Function (sin), Constant
- Example 4: Cosine Function
- Model: y = cos(x)
 Blocks: Trigonometric Function (cos), Constant
- Example 5: Sum of Sin and Cos
- Model: y = sin(x) + cos(x)
 Blocks: Trigonometric, Sum

exercise

- Example 6: Scaled Trig Functions
- Model: y = 2sin(x) 3cos(x)
 Blocks: Gain, Trigonometric, Sum
- Example 7: Sin(2t) * Cos(3t)
- Model: y = sin(2t) * cos(3t)
 Blocks: Clock, Gain, Trig, Product
- Example 8: Basic Integration
- Model: y = integral u dt Blocks: Constant, Integrator, Scope
- Example 9: Integrate sin(t)
- Model: y = integral sin(t) dt = -cos(t) Blocks: Sine Wave, Integrator
- Example 10: Differentiation of sin(t)
- Model: y = d/dt[sin(t)] = cos(t) Blocks: Sine Wave, Derivative

ANY QUESTION?

THANKS