

Integration

Certain functions can be symbolically integrated in MATLAB with the **int** command.

Ex: Find the integration for the equation $f = \int x^2 dx$, we need to define x symbolically first.

```
>> syms x
```

```
>> int(x^2)
```

```
ans =
```

```
    x^3/3
```

Ex: Evaluate the integral $f = \int_1^2 x^2 dx$, In this case, we will use the code `int(fun,xmin,xmax)`. Which, **fun** is the numerically integrates function, from **x_{min}** to **x_{max}** .

```
>> int(x^2,1,2)
```

```
ans =
```

```
7/3
```

Mathematical Operation	MATLAB® Command
$\int x^n dx$	<code>int(x^n)</code>
$\int_0^{\pi/2} \sin(2x) dx$	<code>int(sin(2*x), 0, pi/2)</code>
<p>g = cos(at + b)</p> $\int g(t) dt$	<code>g = cos(a*t + b);</code> <code>int(g)</code> or <code>int(g, t)</code>