

# Mathematica Class 1

`2 + 2`

4

`x = 10;`

`3 x`

30

`2^x`

1024

`2^1000`

10 715 086 071 862 673 209 484 250 490 600 018 105 614 048 117 055 336 074 437 503 883 703 510 511 249 361 224 931 983 788 156 958 581 275 946 729 175 531 468 251 871 452 856 923 140 435 984 577 574 698 574 803 934 567 774 824 230 985 421 074 605 062 371 141 877 954 182 153 046 474 983 581 941 267 398 767 559 165 543 946 077 062 914 571 196 477 686 542 167 660 429 831 652 624 386 837 205 668 069 376

`Tan[10.0]`

0.648361

`? Plot`

`Plot[f, {x, xmin, xmax}]` generates a plot of  $f$  as a function of  $x$  from  $x_{min}$  to  $x_{max}$ .  
`Plot[{f1, f2, ...}, {x, xmin, xmax}]` plots several functions  $f_i$ . >>

`? *Plot*`

## ▼ System`

ArrayPlot	LayeredGraphPlot	ListLogPlot	LogLogPlot	Plot3D	PlotRange	RegionPlot3D
ContourPlot	ListContourPlot	ListPlot	LogPlot	Plot3Matrix	PlotRangeClipping	ReliefPlot
ContourPlot3D	ListContourPlot3D	ListPlot3D	MatrixPlot	PlotDivision	PlotRangePadding	RevolutionPlot3D
DateListPlot	ListDensityPlot	ListPointPlot3D	MaxPlotPoints	PlotJoined	PlotRegion	SphericalPlot3D
DensityPlot	ListLinePlot	ListPolarPlot	ParametricPlot	PlotLabel	PlotStyle	TreePlot
GraphPlot	ListLogLinearPlot	ListSurfacePlot3D	ParametricPlot3D	PlotMarkers	PolarPlot	
GraphPlot3D	ListLogLogPlot	LogLinePlot	Plot	PlotPoints	RegionPlot	

```
x = 20
```

```
20
```

```
% * 5
```

```
100
```

```
%11 * 5
```

```
3.2418
```

```
Integrate[x^2, x]
```

```
Integrate::ilim: Invalid integration variable or limit(s) in 20. >>
```

$$\int 400 \, d20$$

```
Clear[x]
```

```
Integrate[x^2, x]
```

$$\frac{x^3}{3}$$

```
Clear["Global`*"]
```

```
Table[n, {n, 20}]
```

```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
```

```
Table[n, {n, 10, 20}]
```

```
{10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
```

```
Table[1/n, {n, 1, 10, 2}]
```

$$\left\{1, \frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{9}\right\}$$

```
Table[RandomInteger[], {12}]
```

```
{0, 1, 0, 0, 1, 1, 0, 1, 1, 1, 1, 0}
```

```
n = 200
```

```
200
```

```
a[0] = 1; a[1] = 1; Do[a[k] = a[k-1] + a[k-2], {k, 2, n}]; a[n]
```

```
453 973 694 165 307 953 197 296 969 697 410 619 233 826
```

```
n = 20;
```

```
a[0] = 1; a[1] = 1; Print[a[0]]; Print[a[1]];
```

```
Do[a[k] = a[k-1] + a[k-2]; Print[a[k]], {k, 2, n}]
```

1

1

2

3

5

8

13

21

34

55

89

144

233

377

610

987

1597

2584

4181

6765

10 946