# Math X - Intro to *Mathematica*

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## First time with computers

- **Logging in and passwords**
- **Programs**
- **H: Drive**
- **Copy/Paste**

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## Starting with *Mathematica*

- **Basic Calculations (Shift-Enter)**
- **Range & Table**

```
Range[50]
```

```
Table[x, {x, 1, 50}]
```

```
Table[x^2, {x, 1, 50}]
```

- **Graphing**

```
Plot[Sin[x], {x, 0, 2 Pi}]
```

```
Plot3D[Sin[x] Sin[y], {x, 0, 2 Pi}, {y, 0, 2 Pi}]
```

- **Manipulate**

```
Manipulate[x, {x, 1, 50}]
```

```
Manipulate[x^2, {x, 1, 50}]
```

- **Example URL**

```
http : // math.sduhsd.net / MathX / Example1.nb
```

# Coordinate Graphing Intro

## Basic Setup

```
ListPlot[{{0, 0}, {1, 1}}]
```

```
ListPlot[{{0, 0}, {1, 1}}, PlotRange → {{-10, 10}, {-10, 10}}]
```

```
ListPlot[{{0, 0}, {1, 1}}, PlotRange → {{-10, 10}, {-10, 10}}, Joined → True]
```

```
ListPlot[{{0, 0}, {1, 1}, {2, 3}, {-3, 4}, {1, -5}},
 PlotRange → {{-10, 10}, {-10, 10}}, Joined → True]
```

```
mypoints = {{0, 0}, {1, 1}, {2, 3}, {-3, 4}, {1, -5}};
ListPlot[mypoints, PlotRange → {{-10, 10}, {-10, 10}}, Joined → True]
```

## Random Lines

```
RandomInteger[{-10, 10}]
```

```
Table[{RandomInteger[{-10, 10}], RandomInteger[{-10, 10}]}, {10}]
```

```
{{8, -6}, {0, 5}, {-1, -8}, {-10, -9}, {-6, 8}, {8, -3}, {2, -7}, {1, -9}, {-4, 4}, {4, 8}}
```

```
mypoints = Table[{RandomInteger[{-10, 10}], RandomInteger[{-10, 10}]}, {10}];
ListPlot[mypoints, PlotRange → {{-10, 10}, {-10, 10}}, Joined → True]
```

## Make your own picture

```
mypoints = Table[{xpt = RandomInteger[{-5, 5}], xpt^2}, {200}];
ListPlot[mypoints, PlotRange → {{-5, 5}, {0, 25}}, Joined → True]
```

# Bug?

Note the effect of PlotRange

```
ListPlot[{{0, 0}, {1, 1}}, PlotRange → 10]
```

```
ListPlot[{{0, 0}, {1, 1}}, PlotRange → 10, Joined → True]
```

```
ListLinePlot[{{0, 0}, {1, 1}}, PlotRange → 10]
```