Introduction to *Mathematica*: Combining Graphs

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Mathematica has several ways of combining the graphs of functions.

Placing the graphs in one command.

Put the two functions inside of a set { }. The use of the **PlotStyle** command allows different style for the two curves. See the PlotStyle notebook for more information.

```
In[1]:= Plot[{x^2, 4 - x^2}, {x, -2, 2}];
        Plot[{x^2, 4 - x^2}, {x, -2, 2},
          PlotStyle → {RGBColor[1, 0, 0], RGBColor[0, 0, 1]}];
```

Create Separate Plots and then Combine

Each plot must be created and named. Combine them with the **Show** command. This allows us to use different domains for the two plots. In this example, one function is graphed on $-2 \le x \le 2$ and the other on $0 \le x \le 4$.

```
In[3]:= RedBowl =
          Plot[x^2, {x, -2, 2}, PlotStyle → {Thickness[0.01], RGBColor[1, 0, 0]}];
        BlueBowl = Plot[4 x - x^2, {x, 0, 4},
           PlotStyle → {Thickness[0.01], RGBColor[0, 0, 1]}];
        Show[RedBowl, BlueBowl];
```

To suppress the original graphs, use the **DisplayFunction->Identity** option. To show the graphs, use the **DisplayFunction->$DisplayFunction** option.

```
In[6]:= RedBowl = Plot[x^2, {x, -2, 2}, PlotStyle → {Thickness[0.01], RGBColor[1, 0, 0]},
           DisplayFunction → Identity];
        BlueBowl = Plot[4 x - x^2, {x, 0, 4}, PlotStyle →
            {Thickness[0.01], RGBColor[0, 0, 1]}, DisplayFunction → Identity];
        Show[RedBowl, BlueBowl, DisplayFunction → $DisplayFunction];
```

Create Separate Plots and Display Side-by-Side

```
In[9]:= Show[GraphicsArray[{RedBowl, BlueBowl, RedBowl}]];
```

```
In[10]:= Show[GraphicsArray[{{RedBowl, BlueBowl}, {RedBowl, BlueBowl}}]];
```