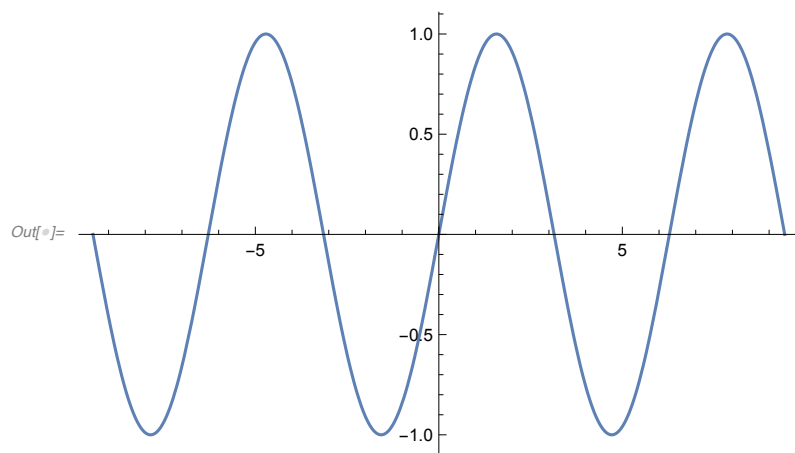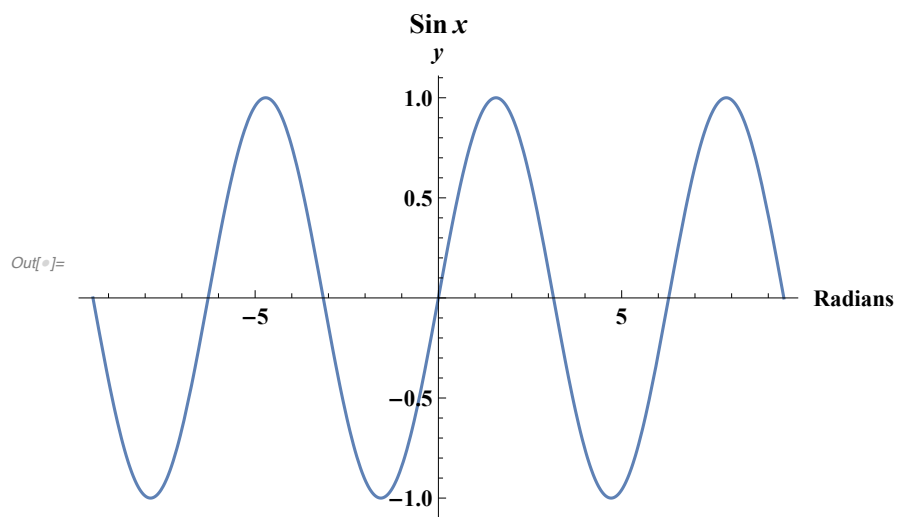*In[●]:=* (*Basic Trig Functions Plotting *)

Plot[Sin[x], {x, -3 Pi, 3 Pi}]

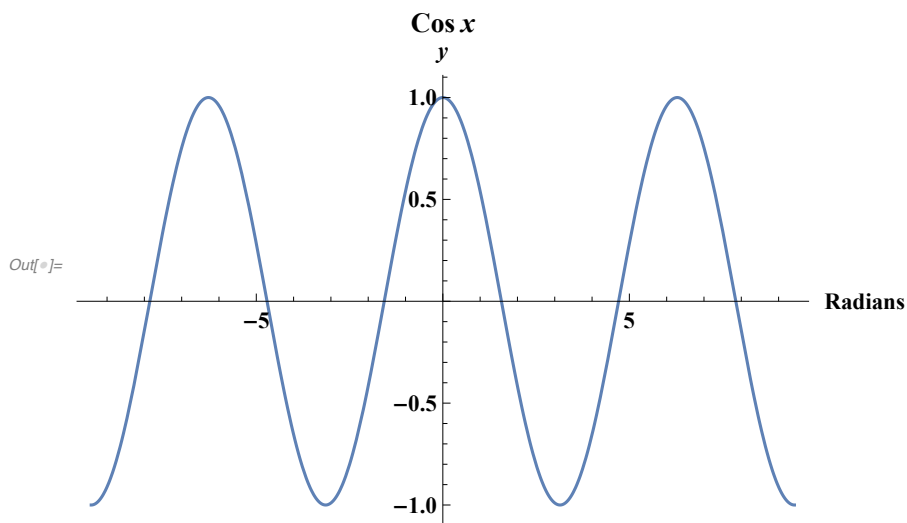*Out[●]=*

In[●]:= Show[%3, AxesLabel → {HoldForm[Radians], HoldForm[y]}, PlotLabel → HoldForm[Sin x],
    LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]

Out[●]=

In[ ]:= `Plot[Cos[x], {x, -3 Pi, 3 Pi},`
`    AxesLabel → {HoldForm[Radians], HoldForm[y]}, PlotLabel → HoldForm[Cos x],`
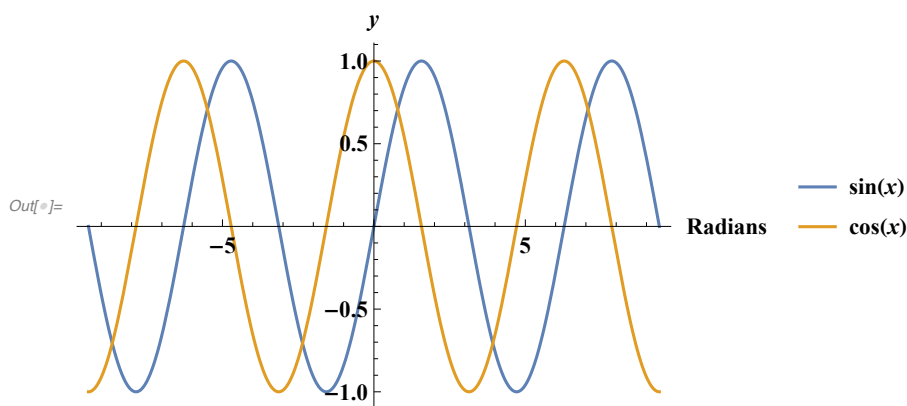`    LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]`

Out[ ]=

In[ ]:= `Plot[{Sin[x], Cos[x]}, {x, -3 Pi, 3 Pi}, PlotLegends → "Expressions",`
`    AxesLabel → {HoldForm[Radians], HoldForm[y]},`
`    LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]`

Out[ ]=

In[●]:= `Plot[{Sin[x], Sin[2 x], Sin[`$\frac{x}{2}$`]}, {x, 0, 3 π},`

   `PlotLegends → "Expressions", AxesLabel → {HoldForm[Radians], HoldForm[y]},`
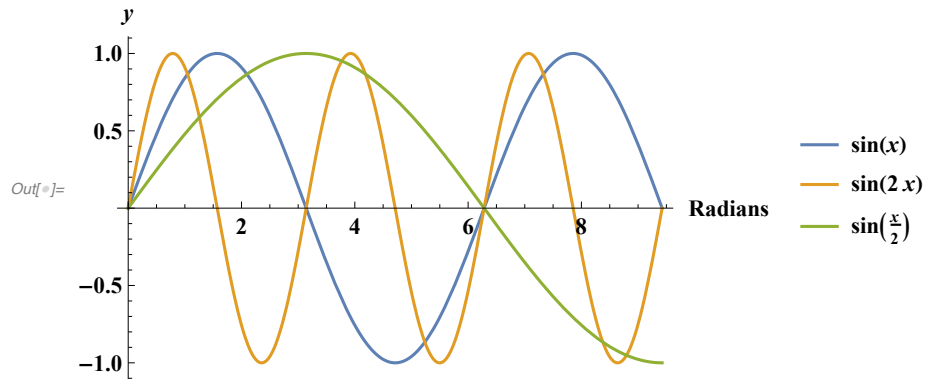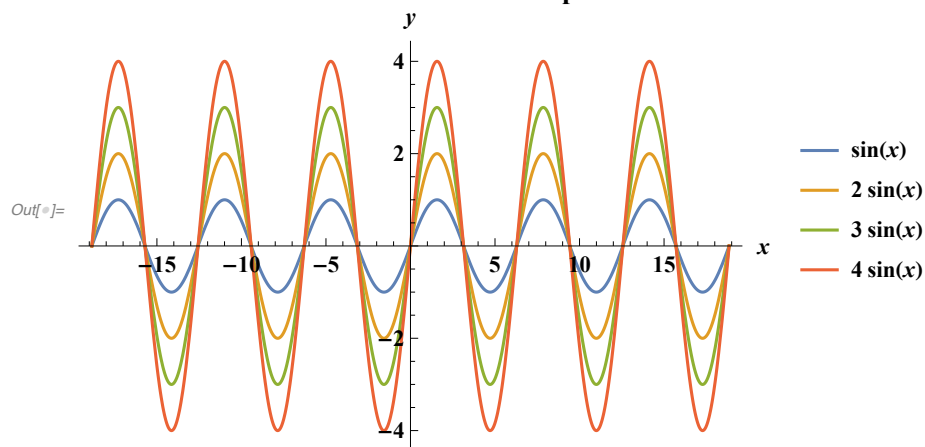   `LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]`

Out[●]=

In[●]:= `Plot[{Sin[x], 2 Sin[x], 3 Sin[x], 4 Sin[x]}, {x, - 6 Pi, 6 Pi},`

   `PlotLegends → "Expressions", AxesLabel → {HoldForm[x], HoldForm[y]},`
   `PlotLabel → HoldForm["Sine Functions with Different Amplitudes"],`
   `LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]`
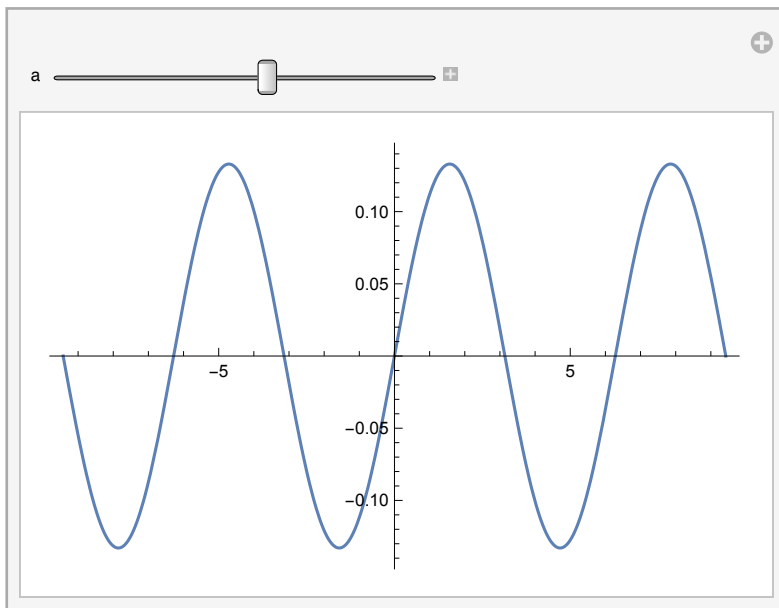
Out[●]=

In[●]:= `Clear[a, x]`

In[ ]:=

```
Manipulate[Plot[a Sin[x], {x, -3 Pi, 3 Pi}], {a, -1, 1}]
```
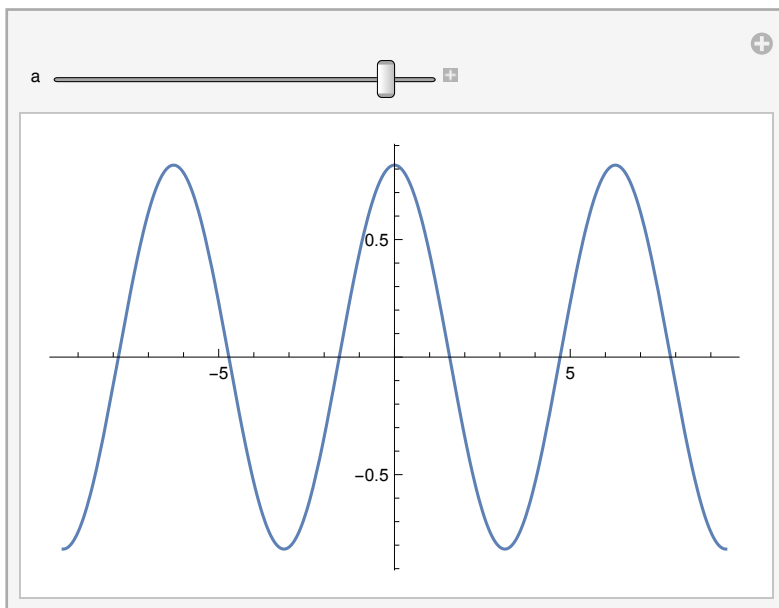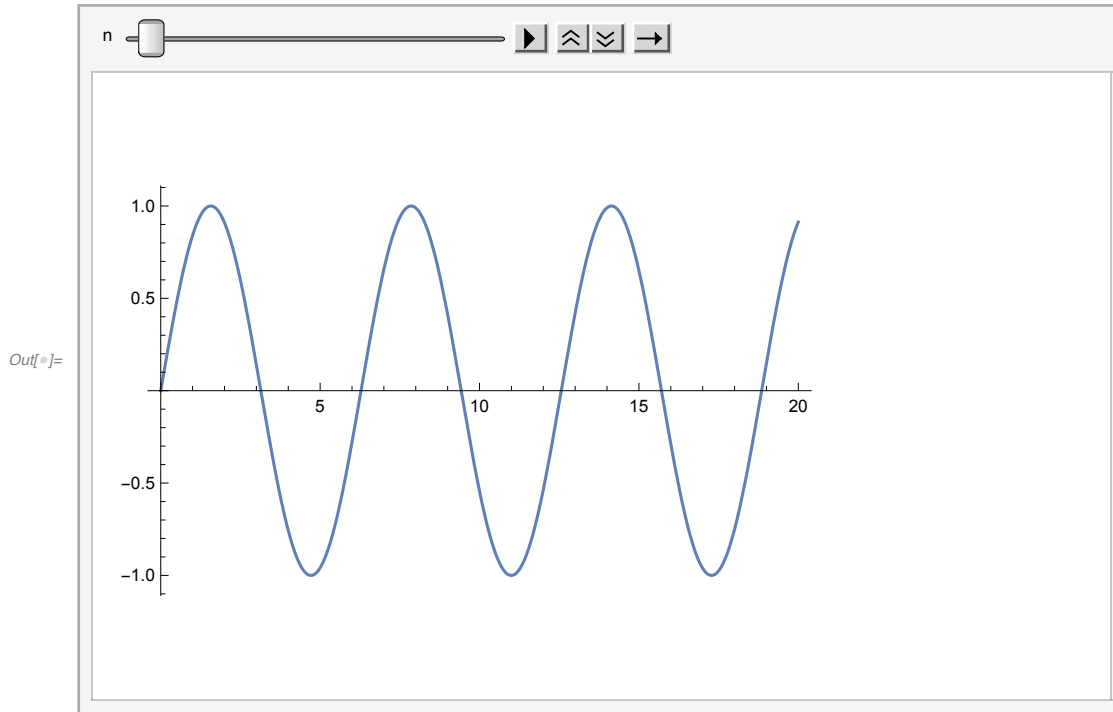
Out[ ]=

In[ ]:=
```
Manipulate[Plot[a Cos[x], {x, -3 Pi, 3 Pi}], {a, -1, 1}]
```
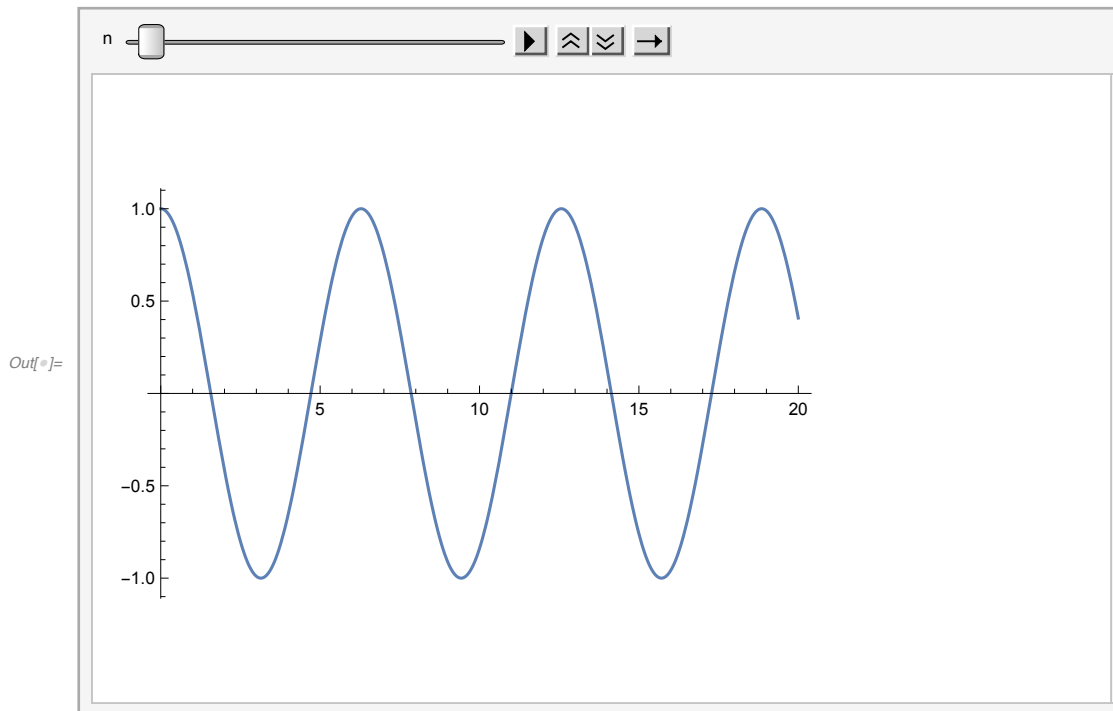
Out[ ]=

In[ ]:= `Animate[Plot[Sin[x + n], {x, 0, 20}], {n, 0, 10`
`}, AnimationRunning → False]`

Out[ ]=

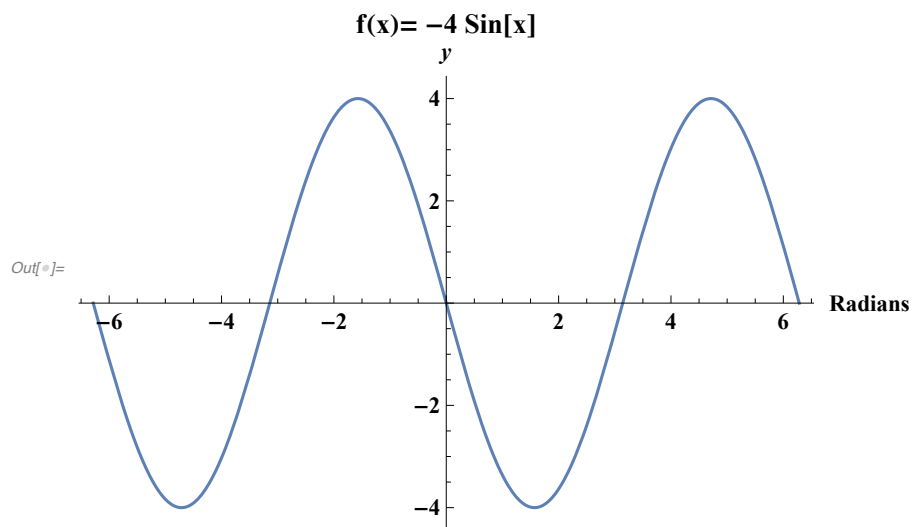*In[ ]:=* `Animate[Plot[Cos[x + n], {x, 0, 20}], {n, 0, 10}, AnimationRunning → False]`

Out[ ]=

In[ ]:= `FunctionPeriod[Sin[`$\frac{Pi\ x}{6}$`], x]`

Out[ ]= `12`

In[ ]:= `FunctionPeriod[Cos[x/3], x]`

Out[ ]= `6 π`

In[ ]:= `Plot[-4 Sin[x], {x, -2 Pi, 2 Pi}, PlotLabel → "f(x)= -4 Sin[x]",`
    `AxesLabel → {HoldForm[Radians], HoldForm[y]},`
    `LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]`

Out[ ]=

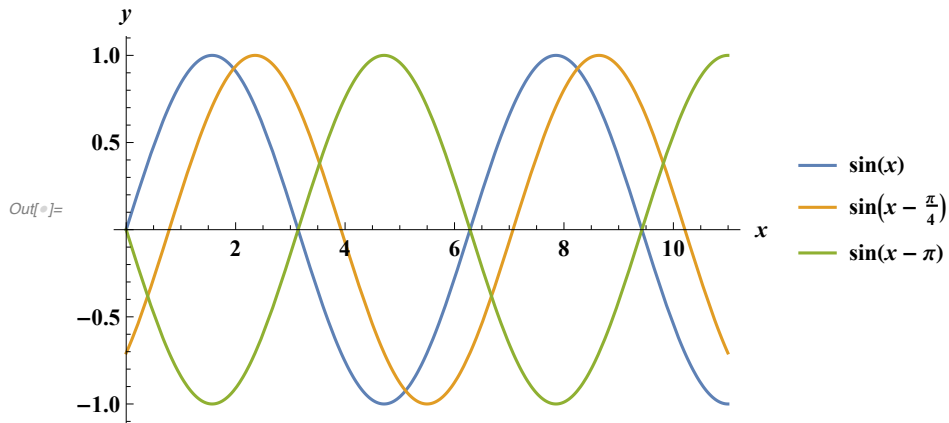`FindMaxValue[-4 Sin[x], x] (*Finds Amplitude*)`

Out[ ]= `4.`

In[ ]:= `FindMaxValue[3/2 Sin[x], x]`

Out[ ]= `1.5`

In[●]:= `Plot[{Sin[x], Sin[x - (Pi/4)], Sin[x - Pi]}, {x, 0, 7 Pi/2},`

`PlotLegends → "Expressions", AxesLabel → {HoldForm[x], HoldForm[y]},`
`LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]`

Out[●]=

In[●]:= `Plot[{Sin[x], Sin[x + (Pi/4)], Sin[x + Pi]}, {x, - 7 Pi/2, 7 Pi/2},`

`PlotLegends → "Expressions", AxesLabel → {HoldForm[x], HoldForm[y]},`
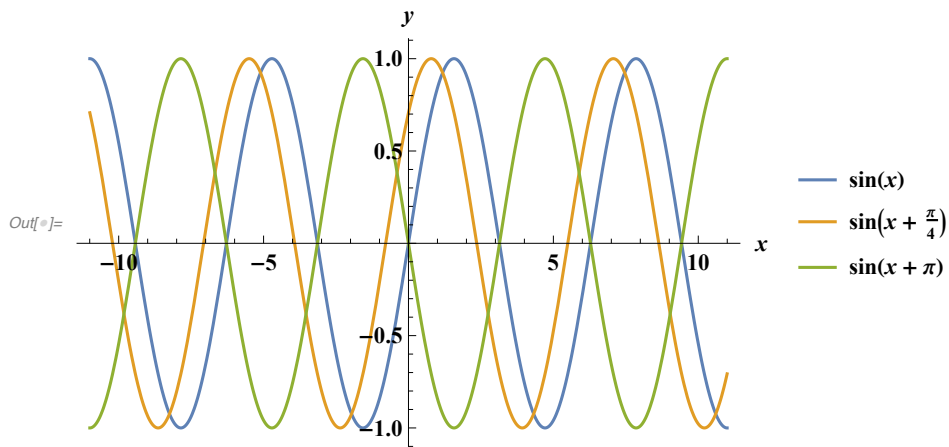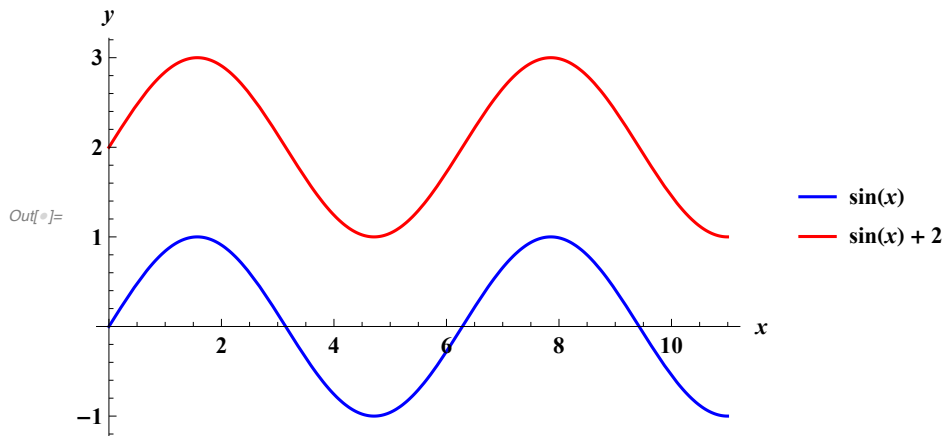`LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]`

Out[●]=

In[●]:= `Plot[{Sin[x], Sin[x] + 2}, {x, 0, `$\frac{7\,Pi}{2}$`}, PlotLegends → "Expressions",`
  `PlotStyle → {Blue, Red}, AxesLabel → {HoldForm[x], HoldForm[y]},`
  `LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]`

Out[●]=

In[●]:= `FunctionPeriod[3 Sin[2 x] + 1, x] (* Finding Period *)`

Out[●]= π

In[●]:= `Plot[ 3 Sin[2 x] + 1, {x, 0, `$\frac{5\,Pi}{2}$`},`
  `AxesLabel → {HoldForm[x], HoldForm[3 Sin[2 x] + 1]},`
  `LabelStyle → {FontFamily → "Times New Roman", 12, GrayLevel[0], Bold}]`

Out[●]=