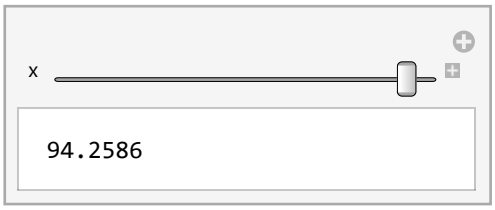
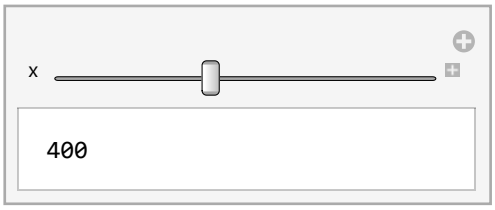
In[ ]:=
```
Manipulate[x^2, {x, 1, 10}]
```

Out[ ]=



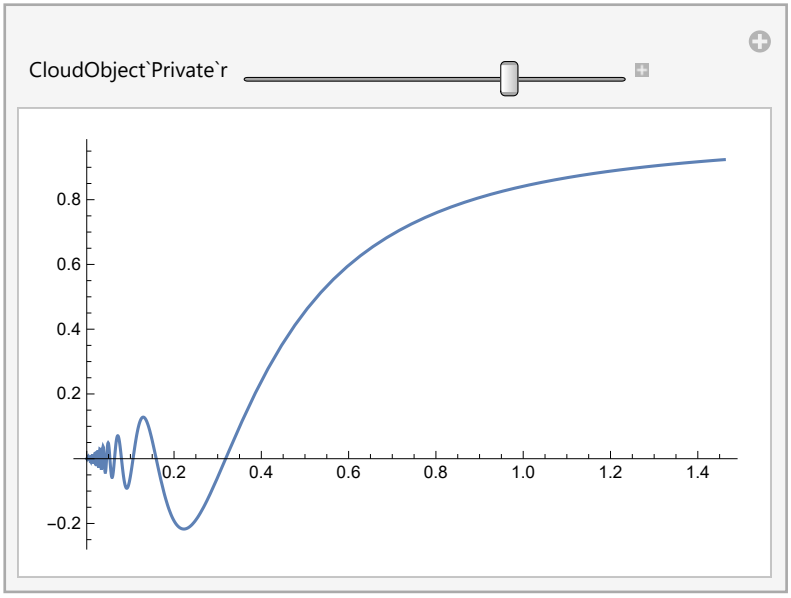
In[ ]:=
```
Manipulate[x^2, {x, 0, 50, 5}]
```

Out[ ]=



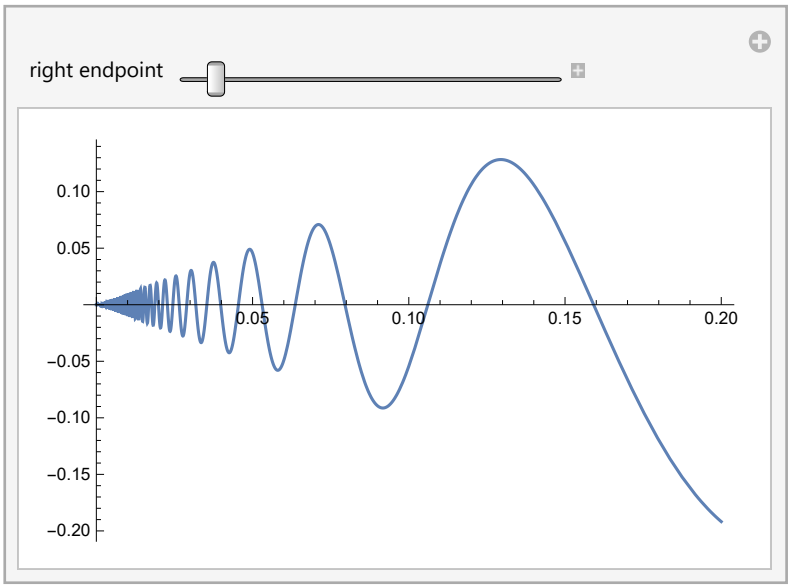
In[ ]:=
```
Manipulate[Plot[x * Sin[1 / x], {x, 0, r}], {r, 0.1, 2}]
```

Out[ ]=



In[ ]:=
```
Manipulate[Plot[x * Sin[1 / x], {x, 0, r}], {{r, 0.2, "right endpoint"}, 0.1, 2}]
```

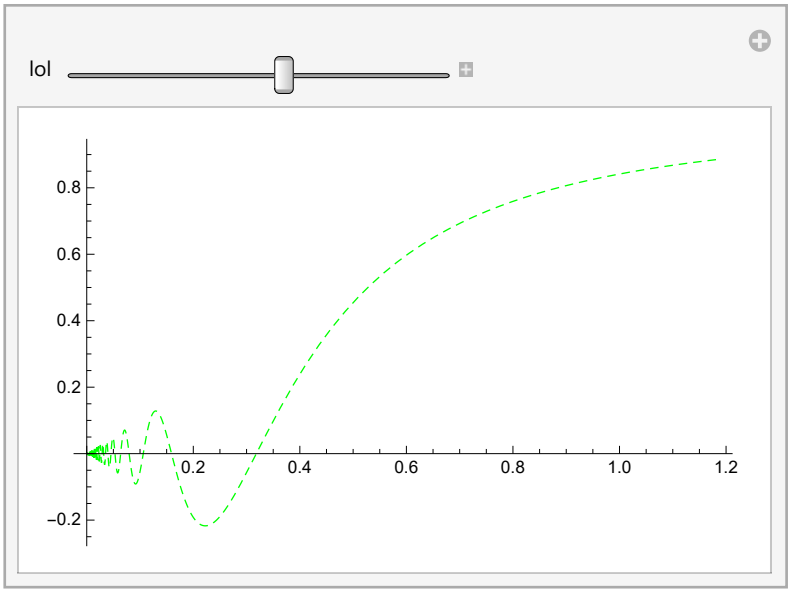
Out[ ]=



forfun

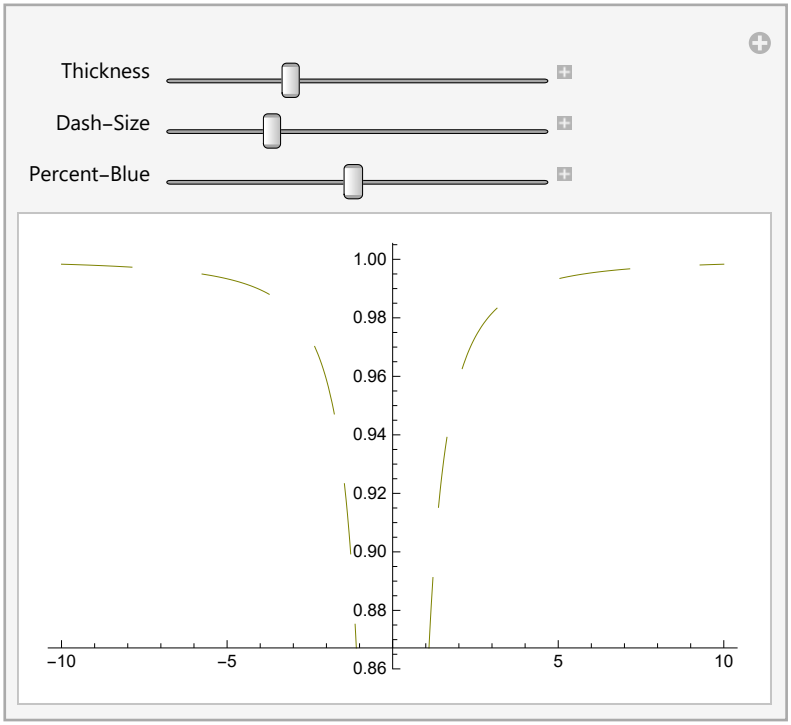
In[ ]:=
```
Manipulate[Plot[x * Sin[1 / x], {x, 0, r}, PlotStyle →
    Directive[Green, Dashing[0.011], Thickness[0.002]]], {{r, 0.2, "lol"}, 0.1, 2}]
```

Out[ ]=



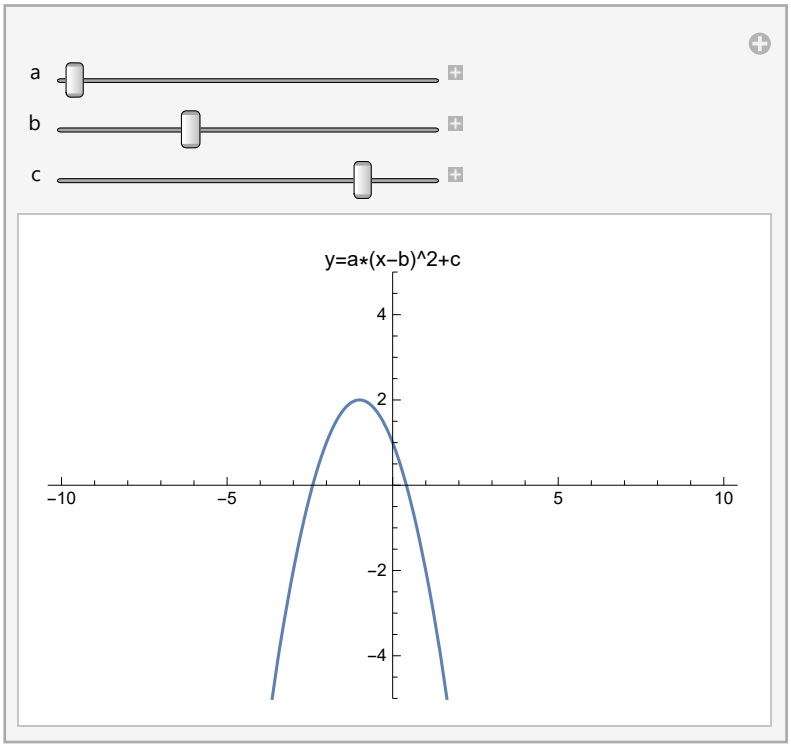
In[ ]:=
```
Manipulate[Plot[x * Sin[1 / x], {x, -10, 10},
  PlotStyle → Directive[Thickness[t], Dashing[{d}], Blend[{Green, Red}, b]]],
 {{t, 0.0015, "Thickness"}, 0.001, 0.002}, {{d, 0.2, "Dash-Size"}, 0, 0.4},
 {{b, .5, "Percent-Blue"}, 0, 1}]
```

Out[ ]=



In[ ]:=
```
Manipulate[Plot[a * (x - b) ^2 + c, {x, -10, 10}, PlotRange → 5, PlotLabel → "y=a*(x-b)^2+c"],
 {a, -1, 1}, {{b, -1}, -3, 3}, {{c, 2}, -3, 3}]
```

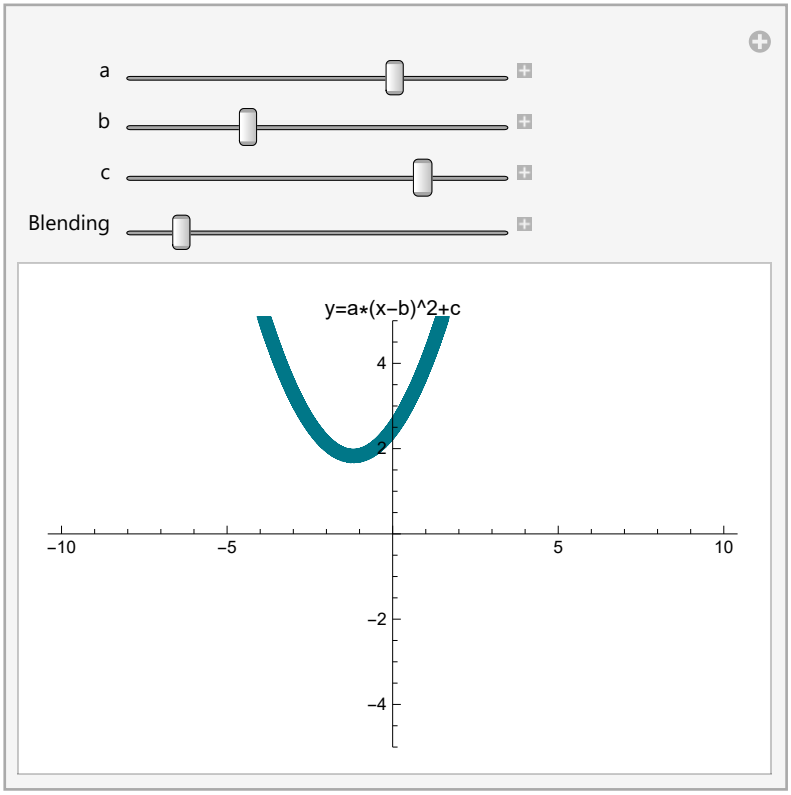
Out[ ]=



FORFUN

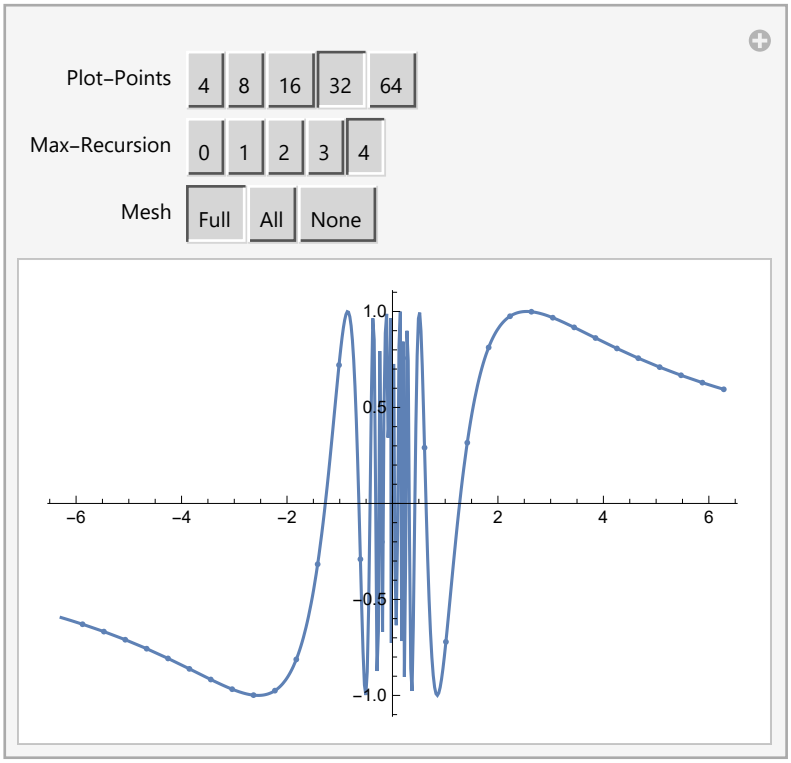
In[ ]:=
```
Manipulate[Plot[a * (x - b) ^ 2 + c, {x, -10, 10}, PlotRange → 5,
  PlotLabel → "y=a*(x-b)^2+c", PlotStyle → Directive[Thickness[0.02],
    Dashing[{0.002}], Blend[{Green, Blue, Gray, Yellow, Pink, Orange}, o]]],
 {a, -1, 1}, {{b, -1}, -3, 3}, {{c, 2}, -3, 3}, {{o, 0.03, "Blending"}, 0, 1}]
```

Out[ ]=



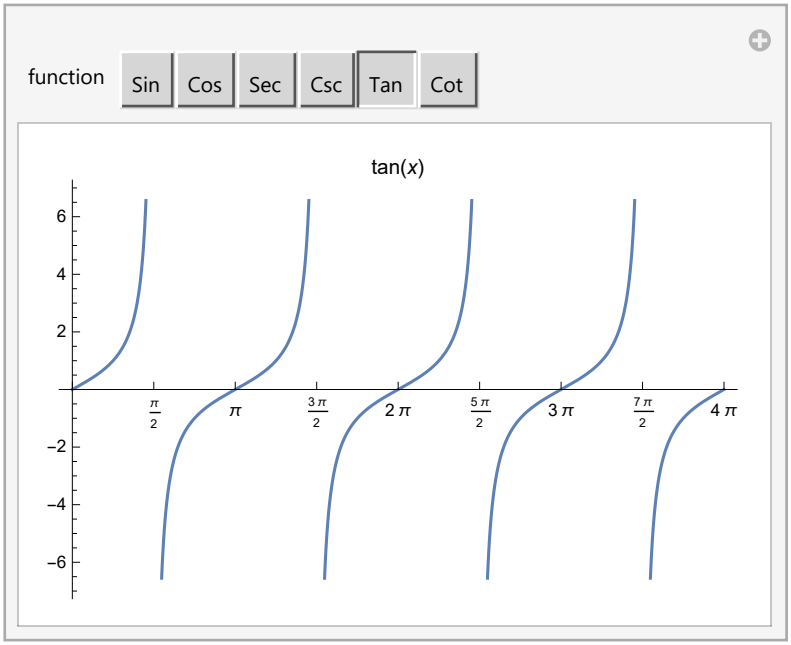
In[ ]:=
```
Manipulate[Plot[Sin[4 / x], {x, -2 π, 2 π}, PlotPoints → pp, MaxRecursion → mr, Mesh → m],
 {{pp, 64, "Plot-Points"}, {4, 8, 16, 32, 64}},
 {{mr, 4, "Max-Recursion"}, {0, 1, 2, 3, 4}}, {{m, Full, "Mesh"}, {Full, All, None}}]
```

Out[ ]=



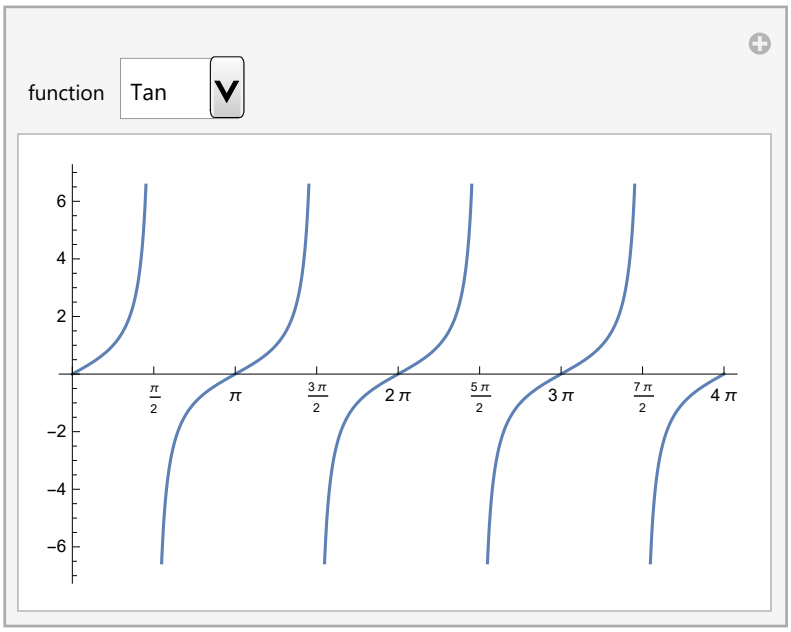
In[ ]:=
```
Manipulate[
 Plot[f[x], {x, 0, 4 π}, Ticks → {Range[0, 4 π, π / 2], Automatic}, PlotLabel → f[x]],
 {{f, Tan, "function"}, {Sin, Cos, Sec, Csc, Tan, Cot}}, ControlType → SetterBar]
```

Out[ ]=



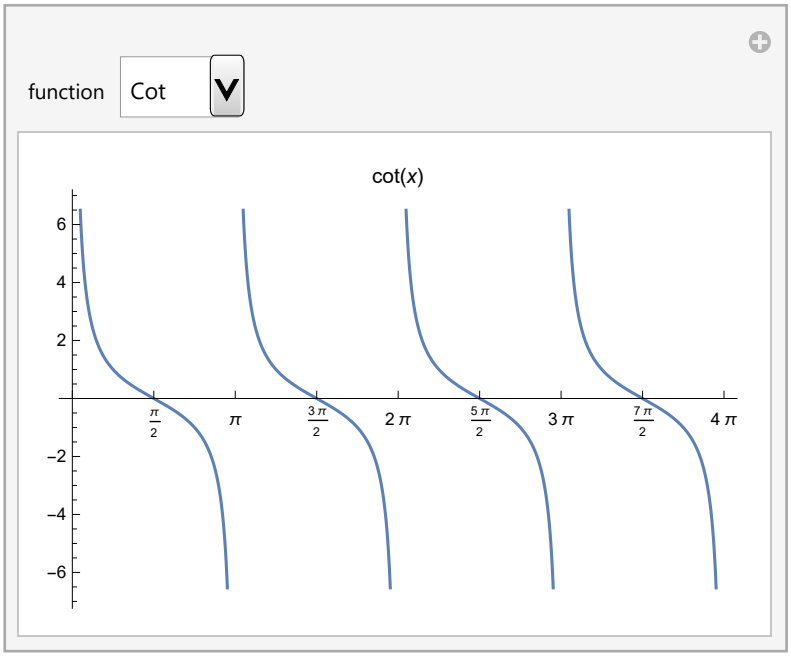
In[•]:=
```
Manipulate[Plot[f[x], {x, 0, 4 π}, Ticks → {Range[0, 4 π, π/2], Automatic}],
 {{f, Tan, "function"}, {Sin, Cos, Sec, Csc, Tan, Cot}}]
```

Out[•]=



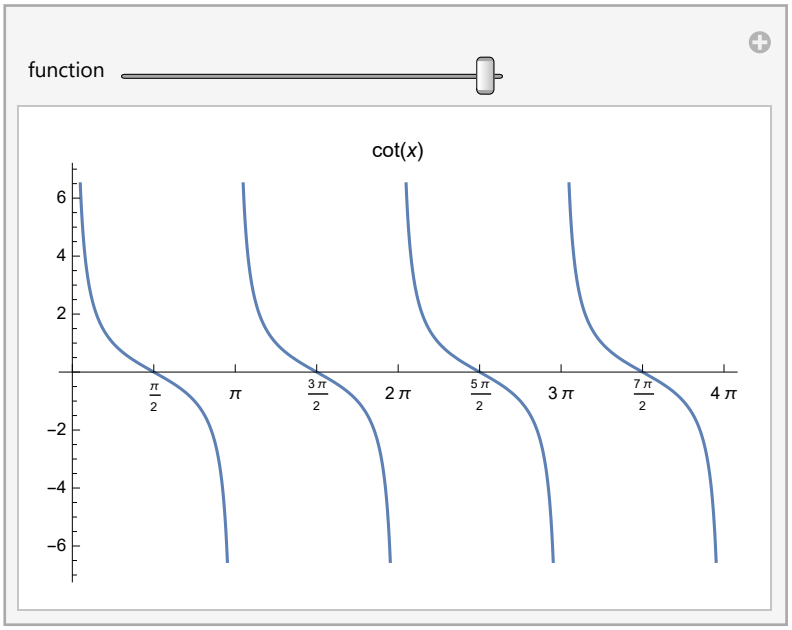
In[•]:=
```
Manipulate[
 Plot[f[x], {x, 0, 4 π}, Ticks → {Range[0, 4 π, π/2], Automatic}, PlotLabel → f[x]],
 {{f, Tan, "function"}, {Sin, Cos, Sec, Csc, Tan, Cot}}, ControlType -> PopupMenu]
```

Out[•]=



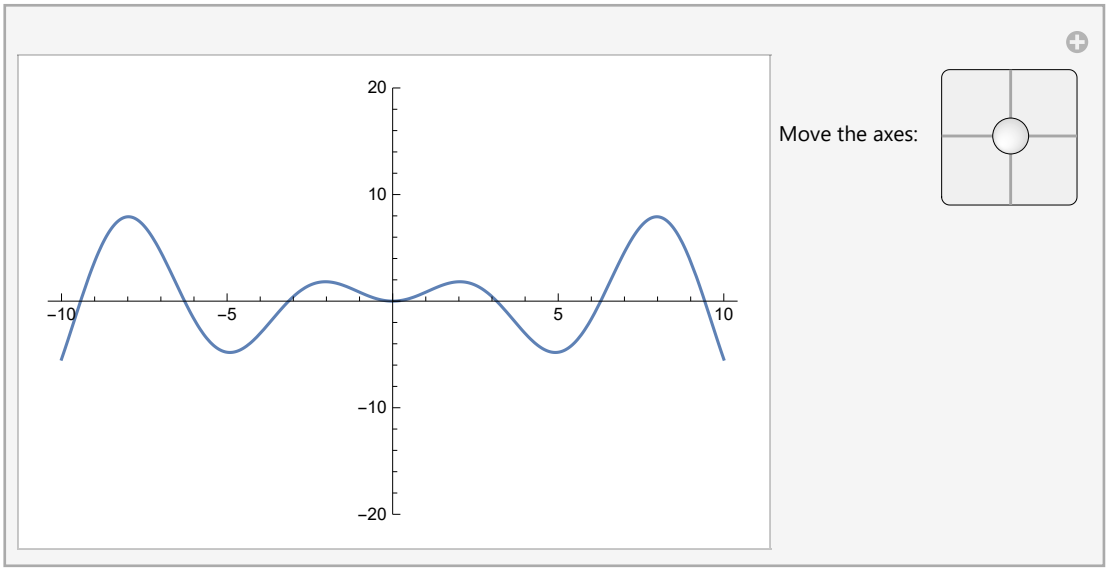
In[ ]:=
```
Manipulate[
 Plot[f[x], {x, 0, 4 π}, Ticks → {Range[0, 4 π, π/2], Automatic}, PlotLabel → f[x]],
 {{f, Tan, "function"}, {Sin, Cos, Sec, Csc, Tan, Cot}}, ControlType -> Slider]
```

Out[ ]=



In[ ]:=
```
Manipulate[Plot[x * Sin[x], {x, -10, 10}, AxesOrigin → pt, PlotRange → 20],
 {{pt, {0, 0}, "Move the axes:"}, {-20, -20}, {20, 20}}, ControlPlacement → Right]
```

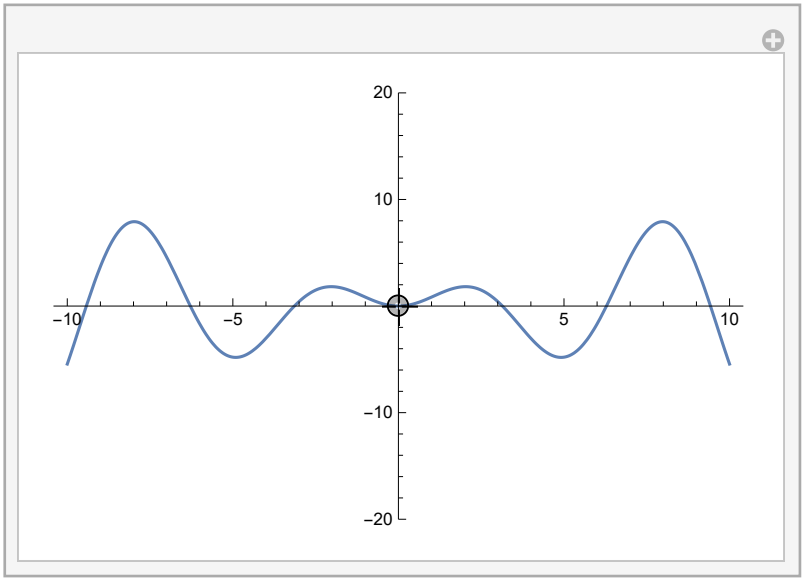
Out[ ]=



In[ ]:=
```
Clear[pt]
```

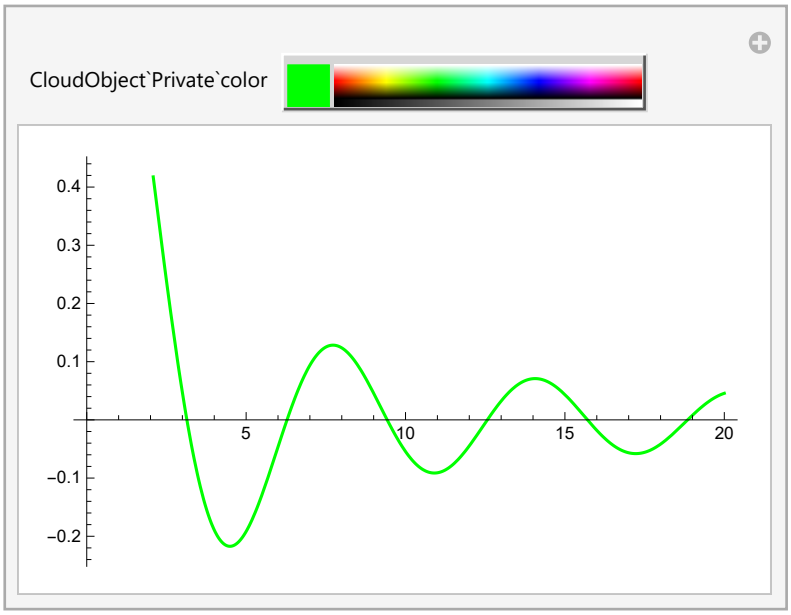
In[•]:=
```
Manipulate[Plot[x * Sin[x], {x, -10, 10}, PlotRange → 20, AxesOrigin → o],
 {{o, {0, 0}}, Locator}]
```

Out[•]=



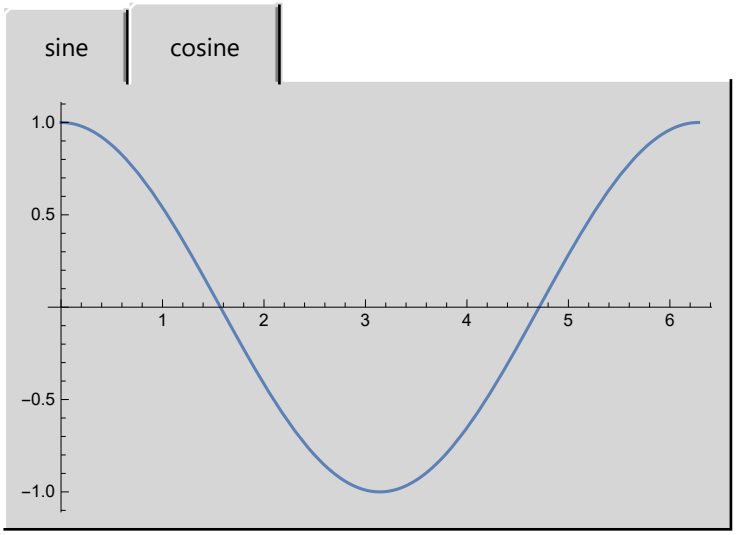
In[•]:=
```
Manipulate[Plot[Sin[x] / x, {x, 0, 20}, PlotStyle → color], {color, Green}]
```

Out[•]=



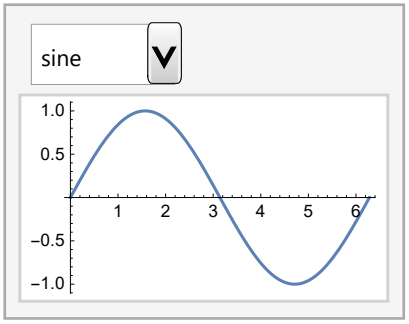
In[ ]:=
```
TabView[{"sine" → Plot[Sin[x], {x, 0, 2 π}], "cosine" → Plot[Cos[x], {x, 0, 2 π}]},
 ImageSize → Automatic]
```

Out[ ]=



In[ ]:=
```
MenuView[{"sine" → Plot[Sin[x], {x, 0, 2 π}], "cosine" → Plot[Cos[x], {x, 0, 2 π}]},
 ImageSize → Automatic]
```

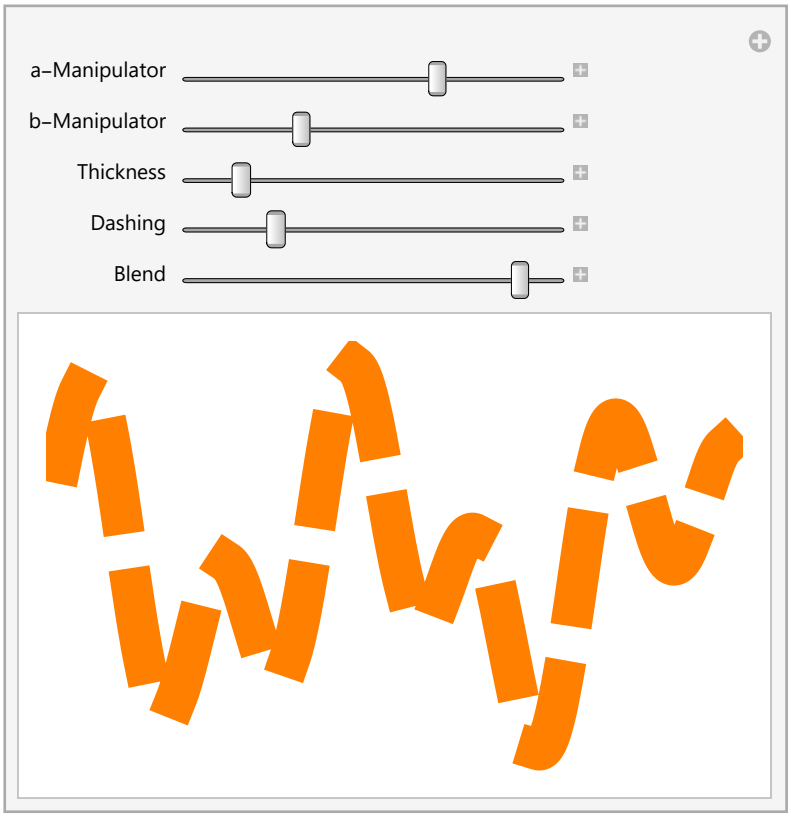
Out[ ]=



FORFUN

In[ ]:=
```
Manipulate[Plot[Sin[a * x] + Cos[b * x], {x, 0, 3 π},
  Axes → False, PlotStyle → Directive[Thickness[t], Dashing[{d}],
    Blend[{Green, Blue, Red, Yellow, Black, Pink, Orange}, o]], MaxRecursion → 5],
 {{a, 1, "a-Manipulator"}, 0, 5}, {{b, 1, "b-Manipulator"}, 0, 5},
 {{t, 0.009, "Thickness"}, 0, 0.5}, {{d, 0.02, "Dashing"}, 0, 0.5}, {{o, 1, "Blend"}, 0, 3}]
```

Out[ ]=

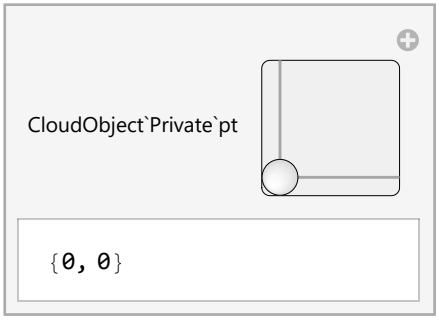


EXERCISE

1.

In[ ]:=
```
Manipulate[pt, {pt, {0, 0}, {1, 1}}]
```

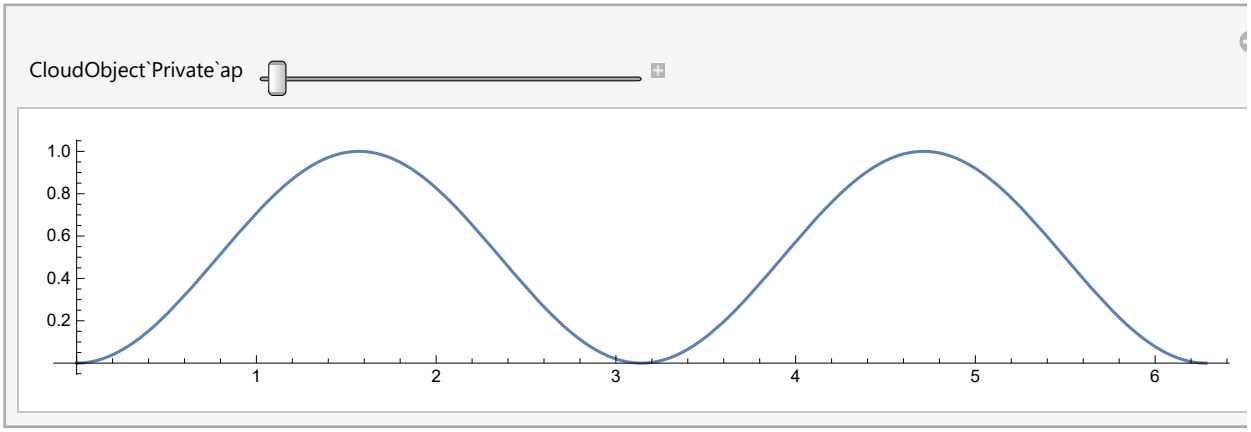
Out[ ]=



2.

In[ ]:=
```
Manipulate[
 Plot[Sin[x]^2, {x, 0, 2 π}, AspectRatio → ap, ImageSize → {Automatic, 128}], {ap, 1/5, 5}]
```

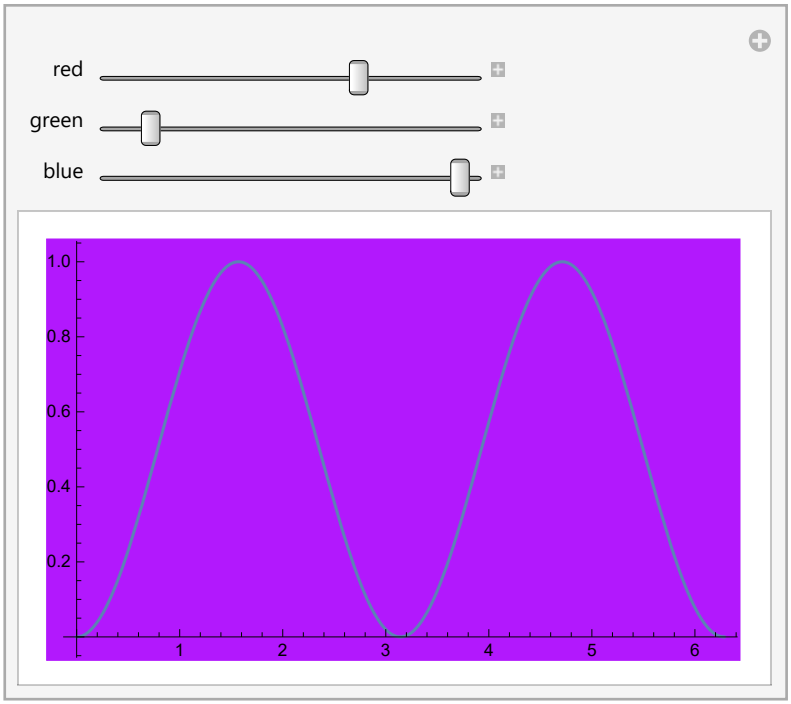
Out[ ]=



3. (a)

In[ ]:=
```
Manipulate[Plot[Sin[x]^2, {x, 0, 2 π}, Background → RGBColor[r, g, b]],
 {{r, 0.8, "red"}, 0, 1}, {{g, 1, "green"}, 0, 1}, {{b, 0.3, "blue"}, 0, 1}]
```

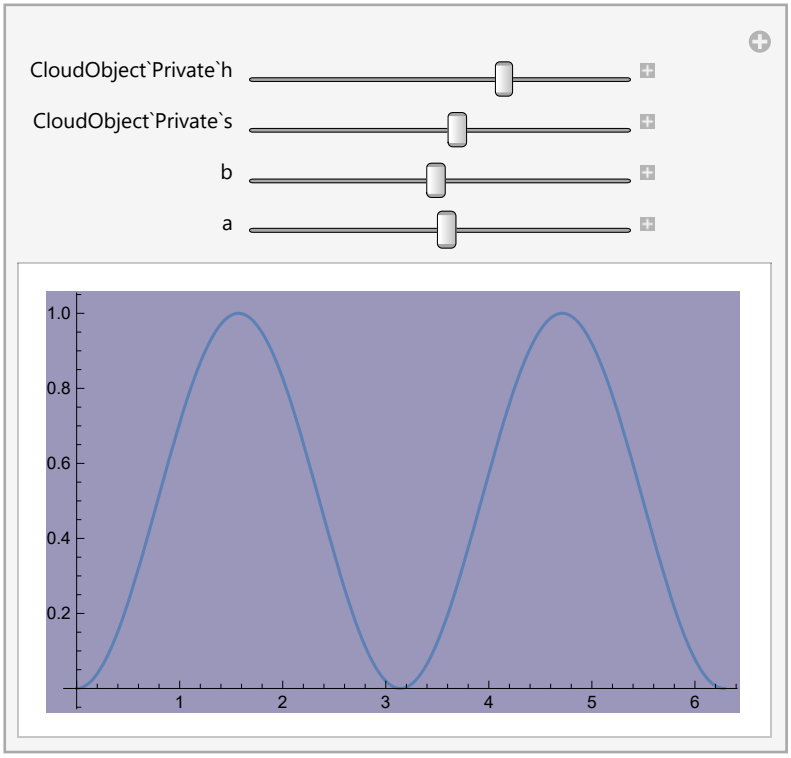
Out[ ]=



(b)

In[ ]:=
```
Manipulate[Plot[Sin[x]^2, {x, 0, 2 π}, Background → Hue[h, s, b, a]],
 {h, 0, 1}, {s, 0, 1}, {b, 0, 1}, {a, 0, 1}]
```

Out[ ]=



4. (a)

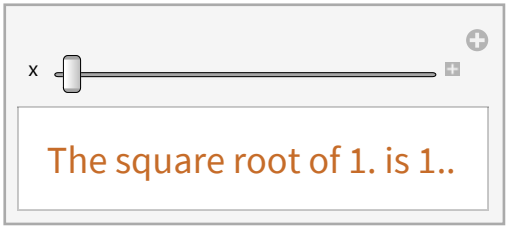
In[ ]:=
```
"This is a string" ~~ " and so is this." // FullForm
```

Out[ ]//FullForm=
```
"This is a string and so is this."
```

(b)

In[ ]:=
```
Manipulate[Style["The square root of " ~~ ToString[x] ~~
   " is " ~~ ToString[N[Sqrt[x]]] ~~ ".", "Subsection"], {{x, 2}, 1, 10}]
```

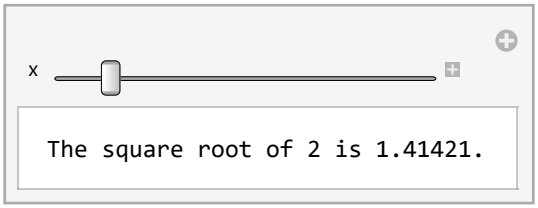
Out[ ]=



or

In[ ]:=
```
Manipulate[
 Style["The square root of " ~~ ToString[x] ~~ " is " ~~ ToString[N[Sqrt[x]]] ~~ "."],
 {{x, 2}, 1, 10}]
```

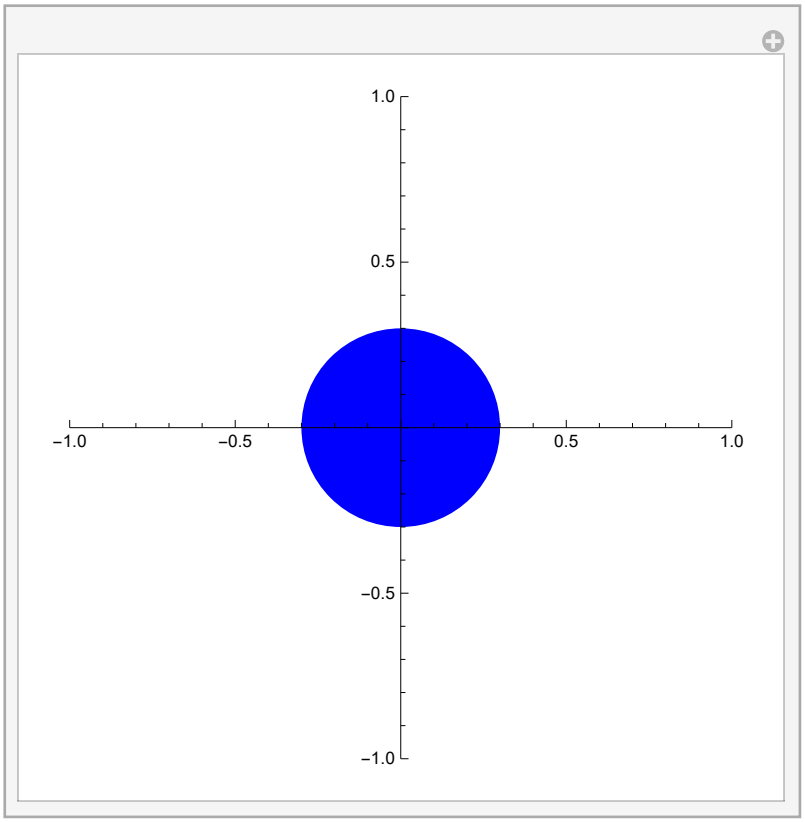
Out[ ]=



(5)

In[ ]:=
```
Manipulate[Graphics[{Directive[PointSize[0.3], Thick, Blue
   ], Point[pt]}, Axes → True, PlotRange → 1], {{pt, {0, 0}}, Locator, Appearance → None}]
```

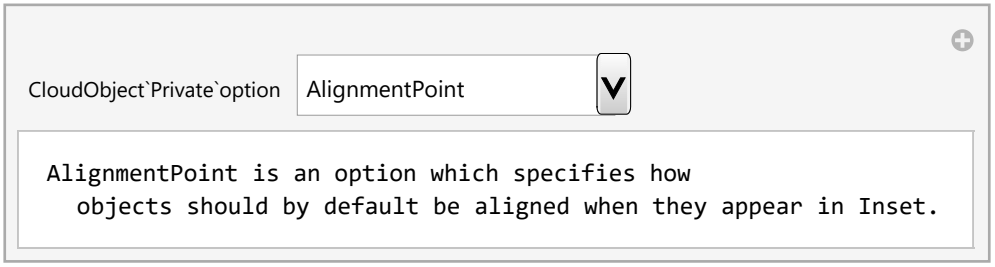
Out[ ]=



(6)

In[ ]:=
```
Manipulate[ToExpression[SymbolName[option] ~~ "::usage"],
 {option, Map[First, Options[Plot]]}]
```

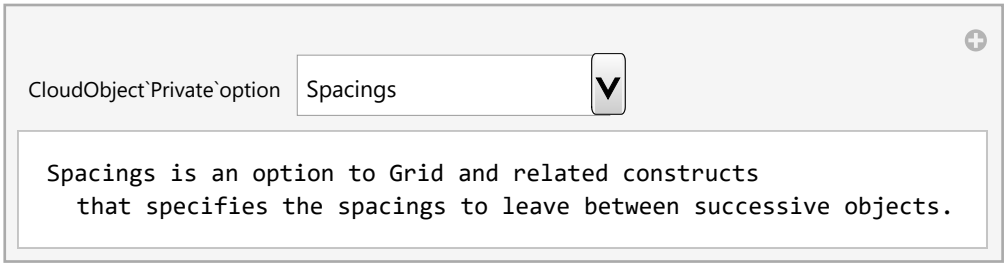
Out[ ]=



6 (a)

In[ ]:=
```
Manipulate[ToExpression[SymbolName[option] ~~ "::usage"],
 {option, Map[First, Options[Grid]]}]
```

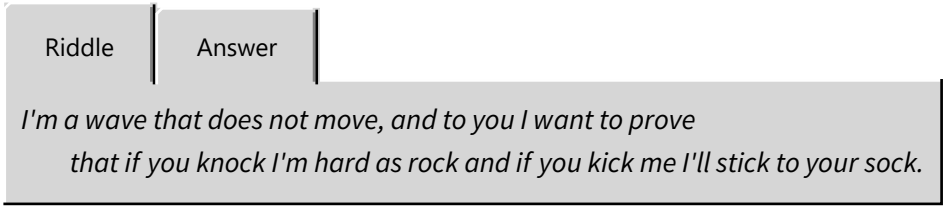
Out[ ]=



(7)

In[ ]:=
```
TabView[
 {"Riddle" → Style["I'm a wave that does not move, and to you I want to prove that if
      you knock I'm hard as rock and if you kick me I'll stick to your sock.",
    Italic, "Text"], "Answer" → Style ["\t\t Ice!", "Section"]}]
```

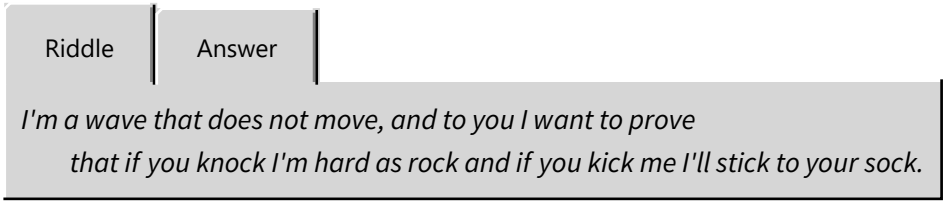
Out[ ]=



(or)

In[ ]:=
```
TabView[
 {"Riddle" → Style["I'm a wave that does not move, and to you I want to prove that
      if you knock I'm hard as rock and if you kick me I'll
      stick to your sock.", Italic, "Text"], "Answer" → "Ice"}]
```

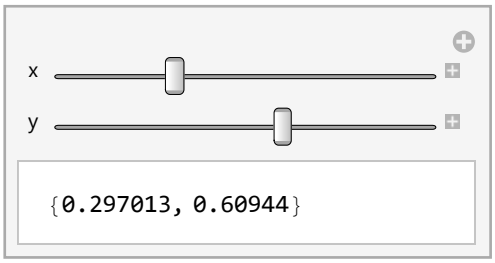
Out[ ]=



(8)

In[ ]:=
```
Manipulate[{x, y}, "X1" → {x, 0, 1}, "Y1" → {y, 0, 1}]
```

Out[ ]=



In[ ]:=
```
Manipulate[pt, "XY1" → {pt, {-1, -1}, {1, 1}}]
```

Out[ ]=