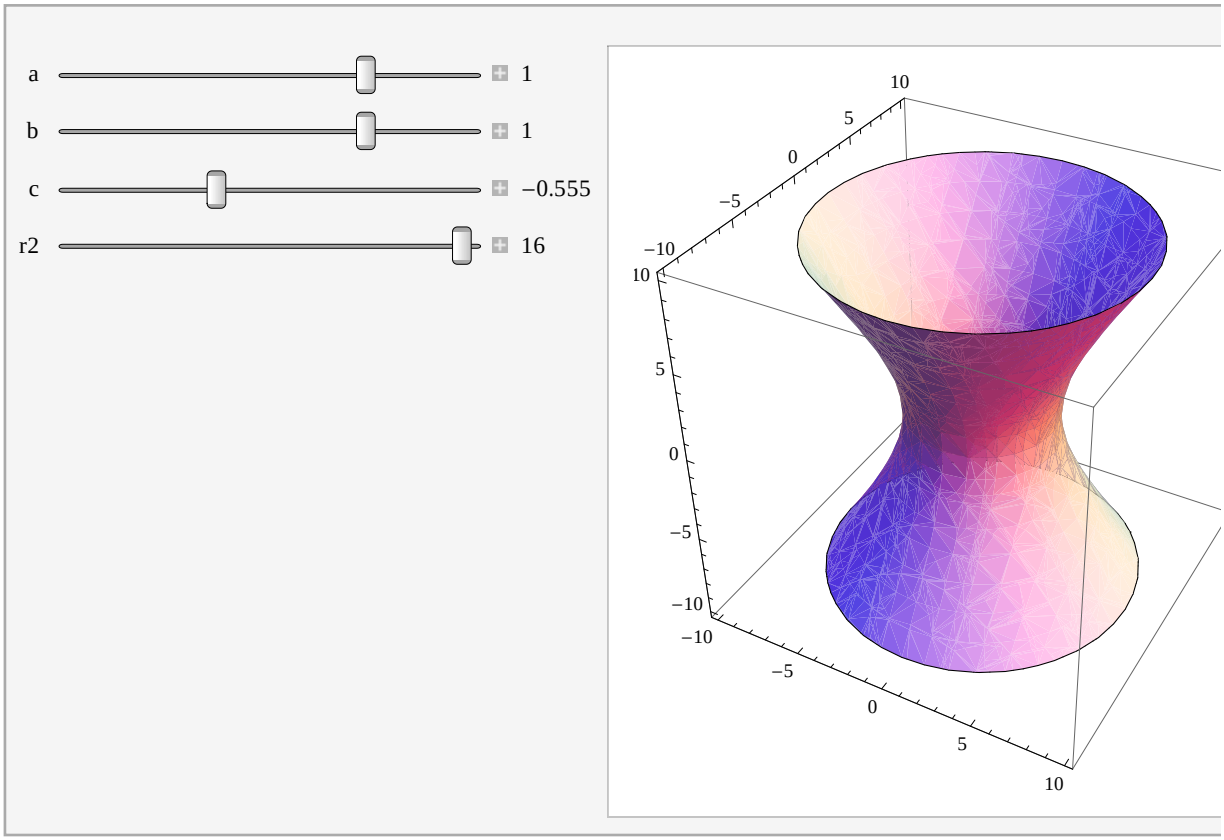
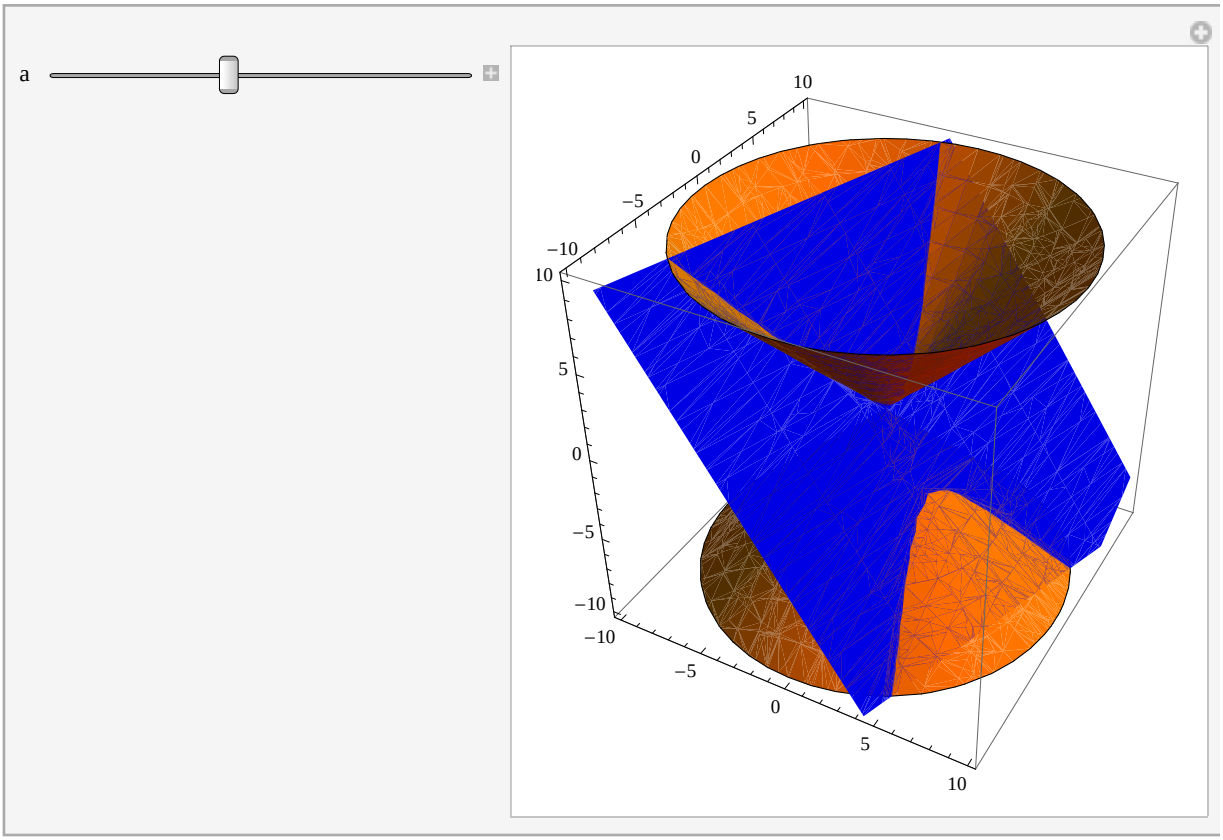
In[1]:=
```
(* kwadryki w R^3 postaci ax^2+by^2+cz^2==r2 *)
a = 1; b = 1; c = 1; r2 = 16;
Manipulate[ContourPlot3D[a x^2 + b y^2 + c z^2 == r2, {x, -10, 10},
  {y, -10, 10}, {z, -10, 10}, PlotRange → Full, Mesh → False, ImageSize → 300],
 {a, -2, 2, Appearance → "Labeled"}, {b, -2, 2, Appearance → "Labeled"},
 {c, -2, 2, Appearance → "Labeled"},
 {r2, -8, 16, Appearance → "Labeled"}, SaveDefinitions → True]
```

Out[2]=

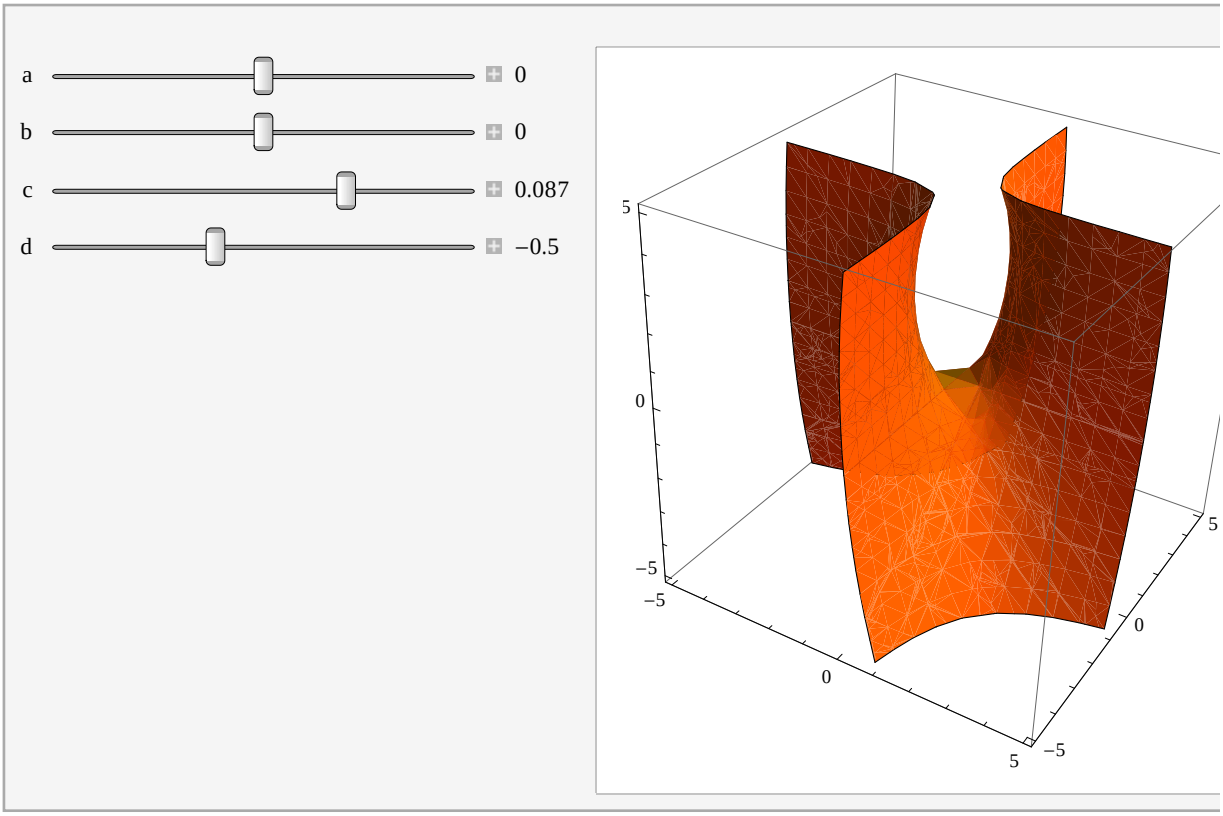


In[5]:=
```
(* plaskie kwadrki jako przekroje plaszczyzny ze stozkiem
   x^2+y^2-z^2==0 w R^3, czyli afiniczne czesci jednej kwadyki w P^2(R) *)
stozek := ContourPlot3D[x^2 + y^2 - z^2 == 0, {x, -10, 10}, {y, -10, 10}, {z, -10, 10},
   ContourStyle → Directive[Orange], PlotRange → Full, Mesh → False, ImageSize → 300];
Manipulate[Show[
  stozek, ParametricPlot3D[{x, a x + 2 z - 4, z}, {x, -10, 10}, {z, -10, 10},
   PlotStyle → Directive[Blue], PlotRange → Full, Mesh → False, ImageSize → 300]],
 {a, -2, 10}, SaveDefinitions → True]
```

Out[6]=



```
(* kwadrki bedace przekrojem hiperplaszczyzny ze stozkiem
   xy+zw=0 w R^4, , czyli afiniczne czesci jednej kwadyki w P^3(R) *)
a = 0; b = 0; c = 0.14; d = -0.5; (* manipuluj c *)
Manipulate[ContourPlot3D[x y + z (a x + b y + c z + d) == 0, {x, -5, 5}, {y, -5, 5},
  {z, -5, 5}, PlotRange → Full, ContourStyle → Orange, Mesh → False, ImageSize → 300],
 {a, -2, 2, Appearance → "Labeled"}, {b, -2, 2, Appearance → "Labeled"},
 {c, -0.2, 0.2, Appearance → "Labeled"},
 {d, -2, 2, Appearance → "Labeled"}, SaveDefinitions → True]
```



```
(* kwadrki bedace przekrojem hiperplaszczyzny ze stozkiem
   x^2+y^2+zw=0 w R^4, czyli afiniczne czesci jednej kwadyki w P^3(R) *)
a = 0; b = 0; c = -1.59; d = -0.5; (* manipuluj c *)
Manipulate[ContourPlot3D[x^2 + y^2 - z (a x + b y + c z + d) == 0, {x, -1, 0.5}, {y, -0.5, 0.5},
  {z, -0.5, 0.5}, PlotRange → Full, ContourStyle → Orange, Mesh → False, ImageSize → 300]
 , {a, -3.5, 2, Appearance → "Labeled"}, {b, -2, 3, Appearance → "Labeled"},
 {c, -2, 2, Appearance → "Labeled"},
 {d, -2, 2, Appearance → "Labeled"}, SaveDefinitions → True]
```