

```

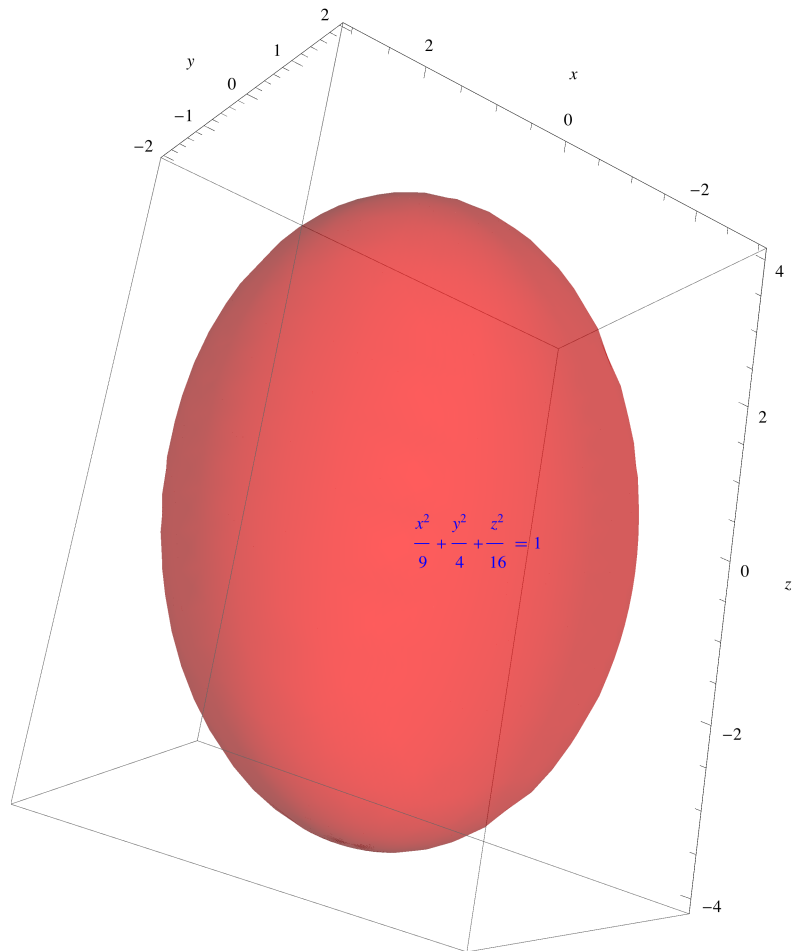
In[31]:= a = 3;
         b = 2;
         c = 4;

In[42]:= QE = ParametricPlot3D[{a Cos[u] Cos[v], b Cos[u] Sin[v], c Sin[u]},
                               {u, -Pi/2, Pi/2}, {v, 0, 2 Pi}, PlotStyle -> {Red, Opacity[0.4]},
                               Mesh -> None, AspectRatio -> Automatic, AxesLabel -> {x, y, z}];

In[43]:= TxtE = Graphics3D[{Blue, Text[ $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$ , {-1, 0, 0}]}];

In[44]:= Show[QE, TxtE]

```



```

In[45]:= h = -2;

In[46]:= PlanOriz = ParametricPlot3D[{x, y, h}, {x, -a, a},
                                       {y, -b, b}, PlotStyle -> {Blue, Opacity[0.7]}, Mesh -> None];

In[47]:= ALB = Graphics3D[{Opacity[0], Sphere[{0, 0, 0}, Max[a, b, c] + 1]}];

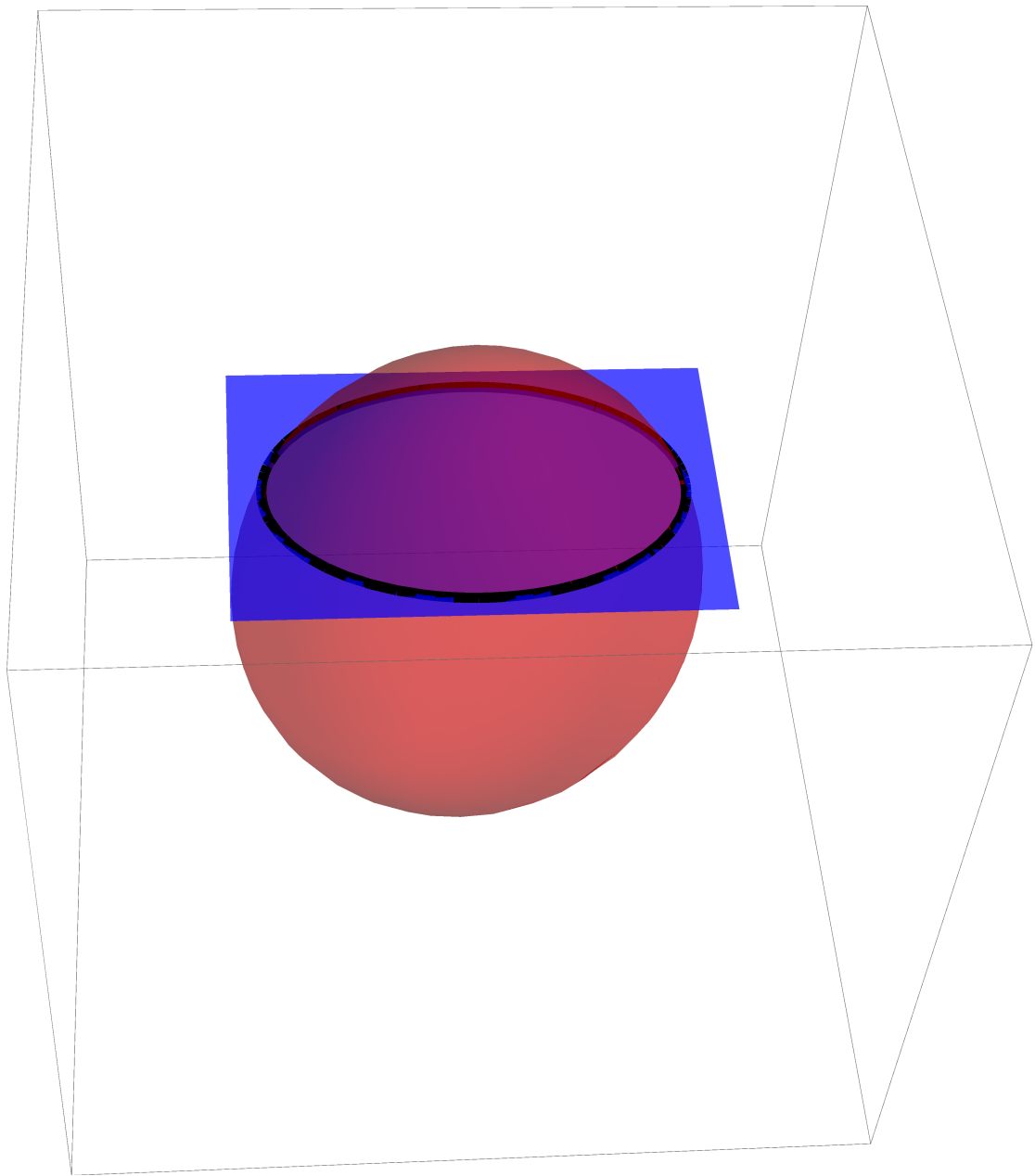
In[48]:= u0 = ArcSin[h / c];

In[51]:= elipsa = ParametricPlot3D[{a Cos[u0] Cos[v], b Cos[u0] Sin[v], c Sin[u0]},
                                     {v, 0, 2 Pi}, PlotStyle -> {Black, Thickness[0.01]},
                                     Mesh -> None, AspectRatio -> Automatic, AxesLabel -> {x, y, z}];

```

In[52]:= **Show[ALB, QE, PlanOriz, elipsa]**

Out[52]=

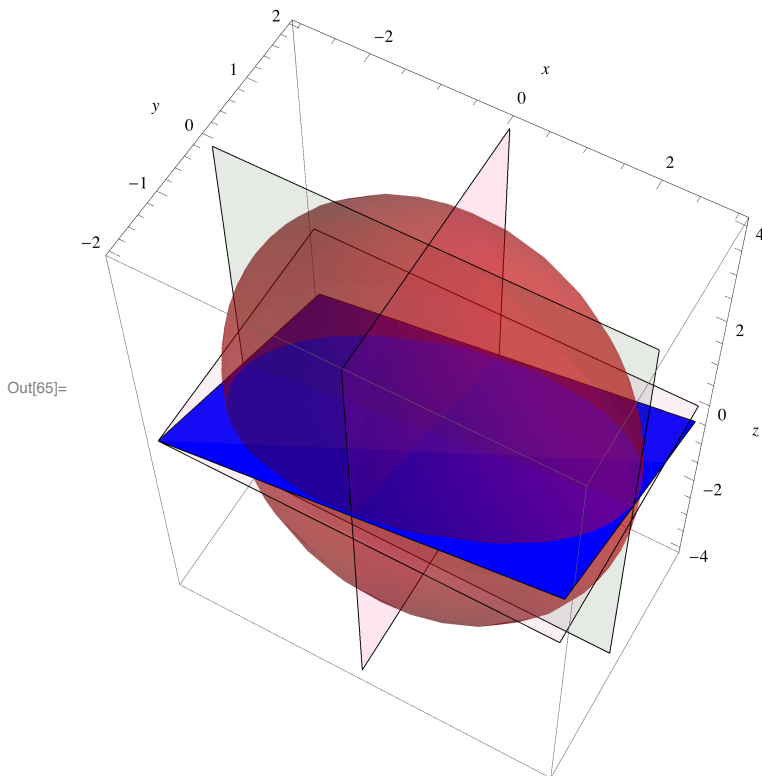


In[53]:= **aa = -1;**
bb = 2;
cc = 5;
dd = 1;

In[57]:= **PlanOblic = ContourPlot3D[aa x + bb y + cc z + dd == 0, {x, -a, a},**
{y, -b, b}, {z, -c, c}, ContourStyle → {Blue, Opacity[1]}, Mesh → None];

In[62]:= **xOy = ContourPlot3D[z == 0, {x, -a, a}, {y, -b, b},**
{z, -c, c}, ContourStyle → {Pink, Opacity[0.1]}, Mesh → None];
yOz = ContourPlot3D[x == 0, {x, -a, a}, {y, -b, b}, {z, -c, c},
ContourStyle → {Magenta, Opacity[0.1]}, Mesh → None];
zOx = ContourPlot3D[y == 0, {x, -a, a}, {y, -b, b}, {z, -c, c},
ContourStyle → {Green, Opacity[0.1]}, Mesh → None];

```
In[65]:= Show[QE, xOy, yOz, zOx, PlanOblic]
```



(* PLANUL TANGENT LA ELIPSOID INTR-UN PUNCT AL SAU: prin dedublare *)

```
In[66]:= a = 2;
b = 6;
c = 3;
x0 =  $\sqrt{2}$ ;
y0 = 3;
z0 = -3 / 2;
```

```
In[72]:= aa =  $\frac{x0}{a^2}$ ; bb =  $\frac{y0}{b^2}$ ; cc =  $\frac{z0}{c^2}$ ; dd = -1;
```

```
In[73]:= PlanTang = ContourPlot3D[aa x + bb y + cc z + dd == 0, {x, -a, a}, {y, -b, b},
{z, -c, c}, ContourStyle -> {Yellow, Opacity[0.7]}, Mesh -> None];
```

```
In[74]:= pct = Graphics3D[Sphere[{x0, y0, z0}, 0.1]];
```

```
In[76]:= QE = ParametricPlot3D[{a Cos[u] Cos[v], b Cos[u] Sin[v], c Sin[u]},
{u, -Pi / 2, Pi / 2}, {v, 0, 2 Pi}, PlotStyle -> {Red, Opacity[0.4]},
Mesh -> None, AspectRatio -> Automatic, AxesLabel -> {x, y, z}];
```

```
In[77]:= Show[QE, PlanTang, pct]
```

Out[77]=

