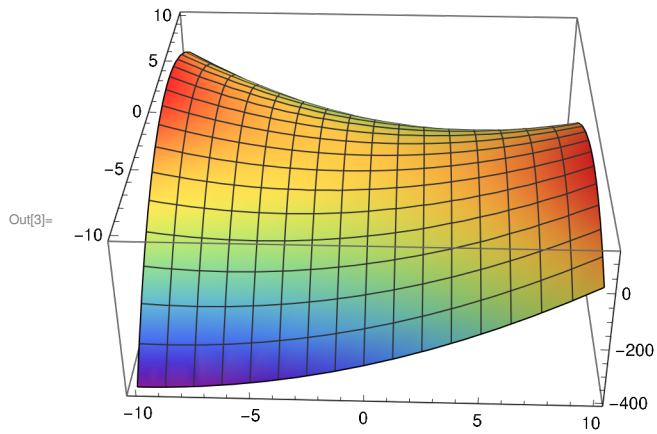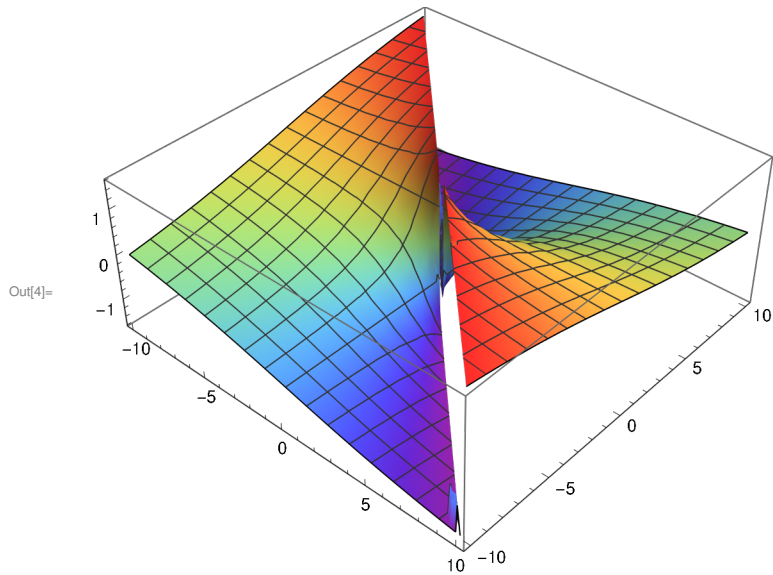In[2]:= `SetOptions[Plot3D(*Or whichever plot you desire*),`
`    ColorFunction → "Rainbow"(*One of many options*)];`

(*1*)
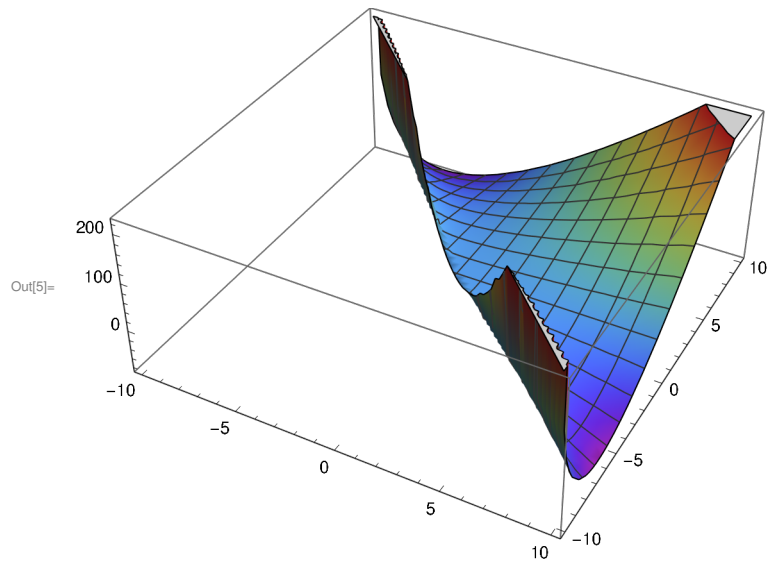
In[3]:= `Plot3D[x^2 - 2 x * y - 3 y^2, {x, -10, 10}, {y, -10, 10}]`

Out[3]=

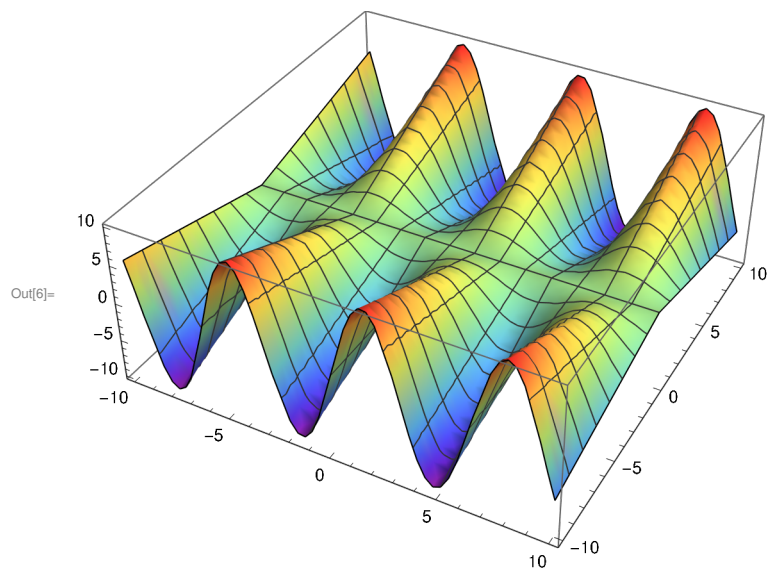In[4]:= `Plot3D[ArcTan[(x - y)/(x + y)], {x, -10, 10}, {y, -10, 10}]`

Out[4]=

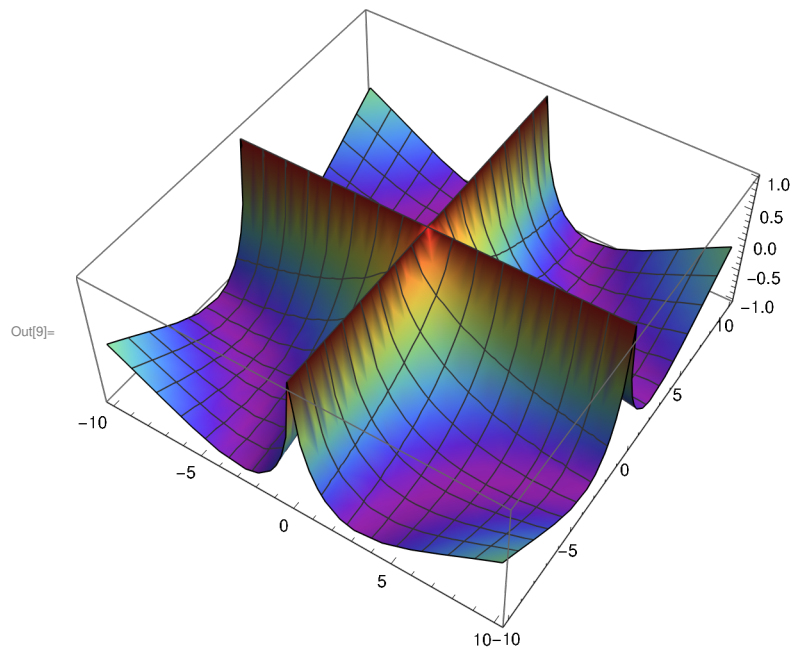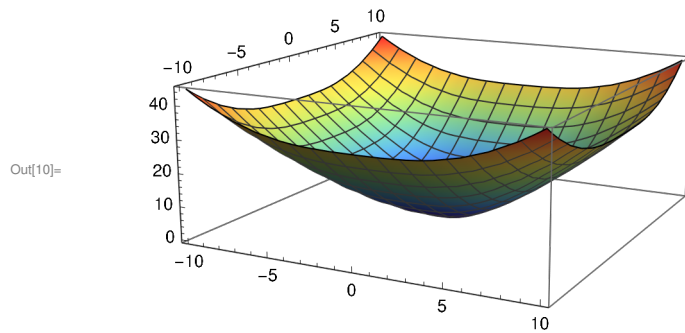In[5]:= `Plot3D[x * y * Log[x + y], {x, -10, 10}, {y, -10, 10}]`

Out[5]=

(*2*)

In[6]:= `Plot3D[Abs[y] Sin[x], {x, -10, 10}, {y, -10, 10}]`
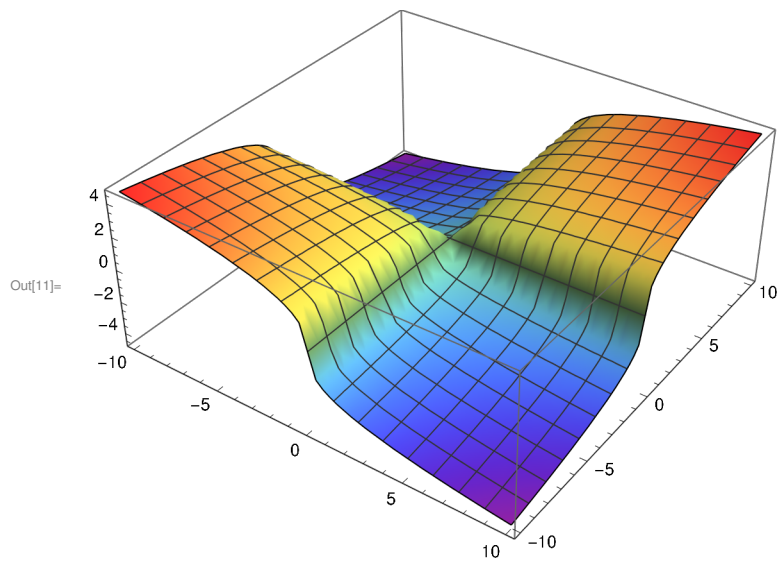
Out[6]=

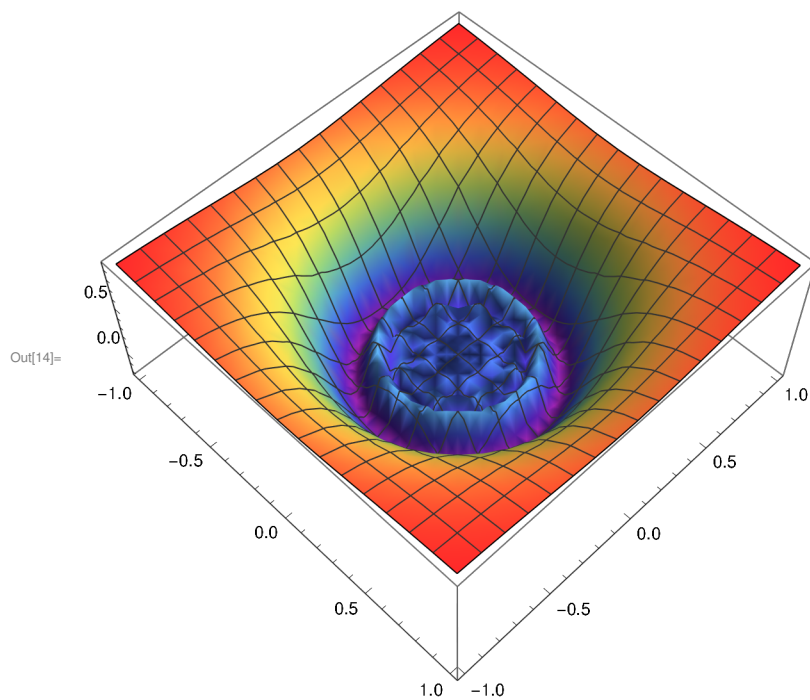In[9]:= `Plot3D[Cos[CubeRoot[(x * y)]], {x, -10, 10}, {y, -10, 10}]`

Out[9]=

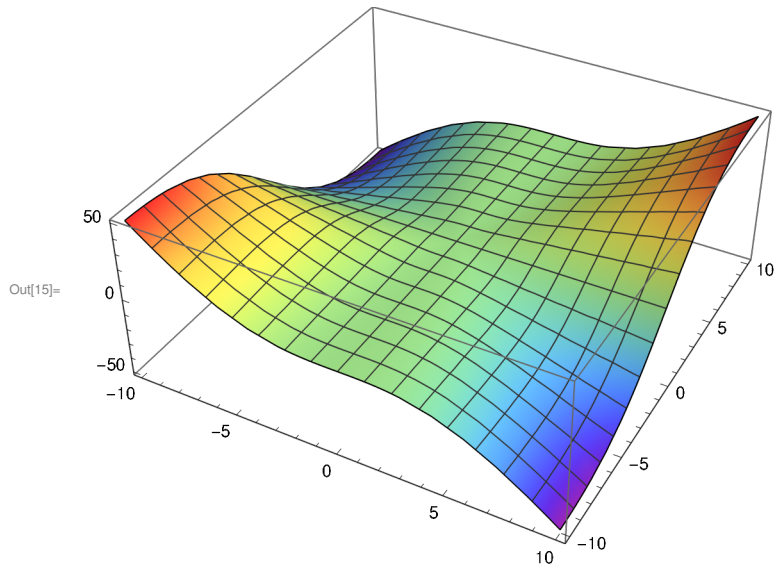In[10]:= `Plot3D[Sqrt[Abs[x ^ 3] + Abs[y ^ 3]], {x, -10, 10}, {y, -10, 10}]`

Out[10]=

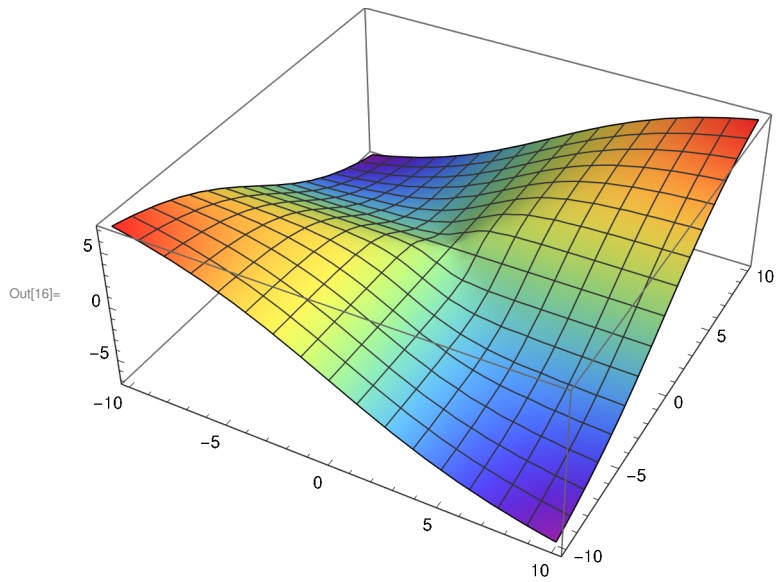In[11]:= `Plot3D[CubeRoot[x * y], {x, -10, 10}, {y, -10, 10}]`

Out[11]=

In[14]:= `Plot3D[(x ^ 2 + y ^ 2) Sin[1 / (x ^ 2 + y ^ 2)], {x, -1, 1}, {y, -1, 1}]`

Out[14]=

In[15]:= **(*3*)**
Plot3D[x^3 y / (x^2 + y^2), {x, -10, 10}, {y, -10, 10}]

Out[15]=

(*4*)
Plot3D[x * y / (Sqrt[x^2 + y^2]), {x, -10, 10}, {y, -10, 10}]

Out[16]=

In[22]:= **(*5*)**

Plot3D[(x + y) / (x ^ 2 + y ^ 2) Log[1 + x * y], {x, -3, 3}, {y, -3, 3}]

Out[22]=

In[23]:= **(*6*)**

Plot3D[(x ^ 2 + y ^ 2), {x, -10, 10}, {y, -10, 10}]

Out[23]=