■ Contour Plots

Here is a way to enter the Cobb-Douglas function in Mathematica:

```
In[1]:= P[K_, L_] = 1.01 K^(.25) * L^(.75)
```

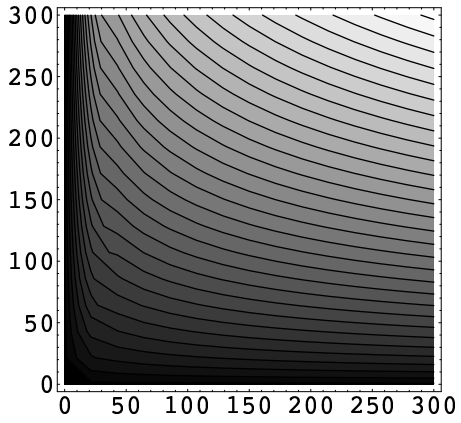
$$\text{Out[1]= } 1.01\, K^{0.25}\, L^{0.75}$$

You can now evaluate it:

```
In[2]:= P[300, 300]
Out[2]= 303.
```

And you can draw its contour plot:

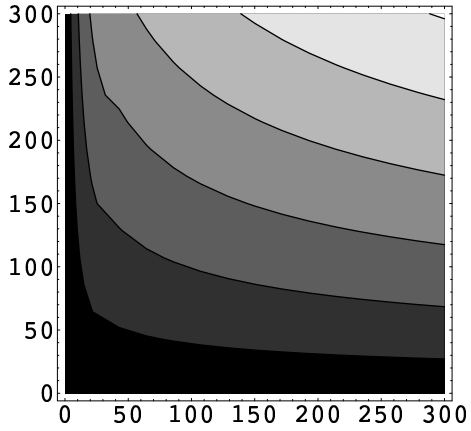
```
In[3]:=
ContourPlot[1.01 K^(.25) * L^(.75), {K, 0, 300}, {L, 0, 300}, Contours → 30]
```




```
Out[3]= - ContourGraphics -
```

The Option "Contour → 30" makes Mathematica draw 30 contour lines, or level curves. You can also specify the levels one by one:

```
In[4]:= ContourPlot[1.01 K^(.25) * L^(.75), {K, 0, 300},
         {L, 0, 300}, Contours → {50, 100, 150, 200, 250, 300}]
```




```
Out[4]= - ContourGraphics -
```

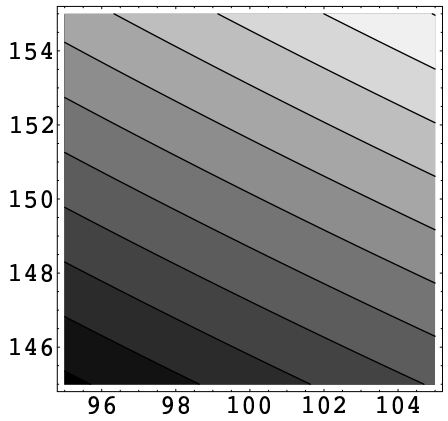
To evaluate the partial derivatives visually around the point (K, L) = (100, 150), let ' s evaluate P (100, 150) :

```
In[5]:= P[100, 150]

Out[5]= 136.896
```

And let's draw the contours in a small square around (100, 150), with level curves separated by values of 1:

```
In[7]:= ContourPlot[1.01 K^(.25) * L^(.75), {K, 95 , 105}, {L, 145, 155},
         Contours → {130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142}]
```




```
Out[7]= - ContourGraphics -
```