Week-5:

In[1]:=
$$f[x\_] := \frac{2x+3}{3x-1}$$

In[4]:=
$$f[3]$$

Out[4]=
$$\frac{9}{8}$$

In[5]:=
$$N[\%]$$

Out[5]=
$$1.125$$

In[3]:=
$$\text{Simplify}\left[x^2+2x+1\right]$$

Out[3]=
$$(1+x)^2$$

In[7]:=
$$\text{FullSimplify}\left[\text{Integrate}\left[\frac{1}{x^4-1}, \left\{x, -\frac{\text{Pi}}{4}, \frac{\text{Pi}}{4}\right\}\right]\right] // N$$

Out[7]=
$$-1.72508$$

In[8]:=
$$\text{NSolve}\left[x^5-4x+5==0, x\right]$$

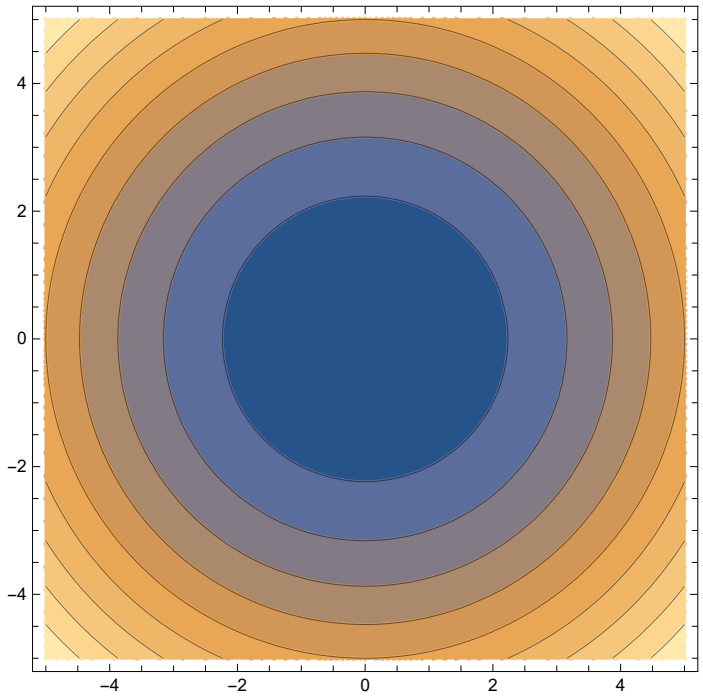
Out[8]=
$$\{\{x \to -1.63044\}, \{x \to -0.237094 - 1.51552\, i\}, \{x \to -0.237094 + 1.51552\, i\}, \{x \to 1.05231 - 0.442637\, i\}, \{x \to 1.05231 + 0.442637\, i\}\}$$

In[9]:=
$$\text{NSolve}\left[\left\{x^2+y^3==1, 2x+3y==6\right\}, \{x, y\}\right]$$

Out[9]=
$$\{\{x \to 9.88548, y \to -4.59032\}, \{x \to 1.24476 - 0.916754\, i, y \to 1.17016 + 0.611169\, i\}, \{x \to 1.24476 + 0.916754\, i, y \to 1.17016 - 0.611169\, i\}\}$$

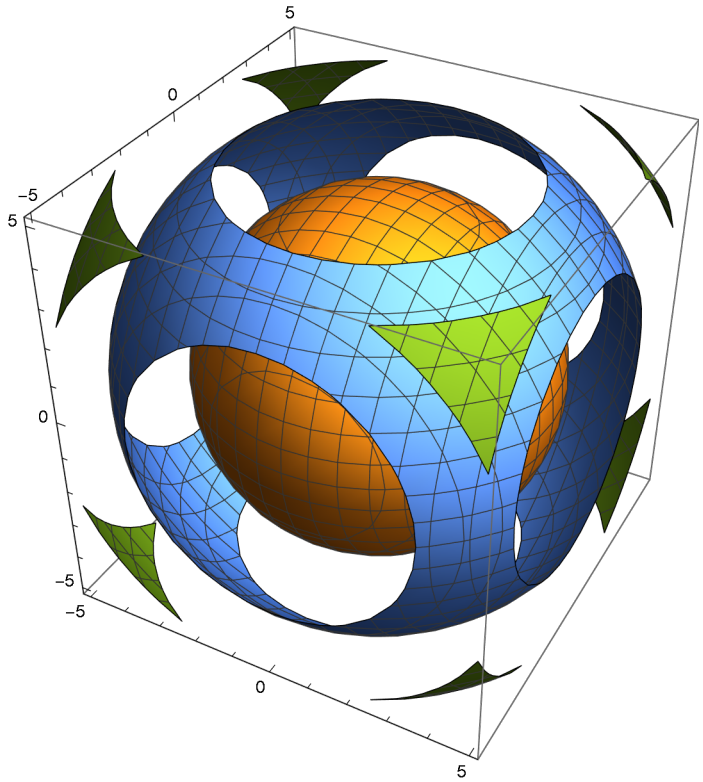
In[10]:=
```
ContourPlot[x^2 + y^2, {x, -5, 5}, {y, -5, 5}]
```

Out[10]=



In[12]:=
```
ContourPlot3D[x^2 + y^2 + z^2, {x, -5, 5}, {y, -5, 5}, {z, -5, 5}]
```

Out[12]=



In[13]:=
```
Integrate[(1 - Cos[2 x])/(1 + Cos[2 x]), {x, 0, 1}]
```

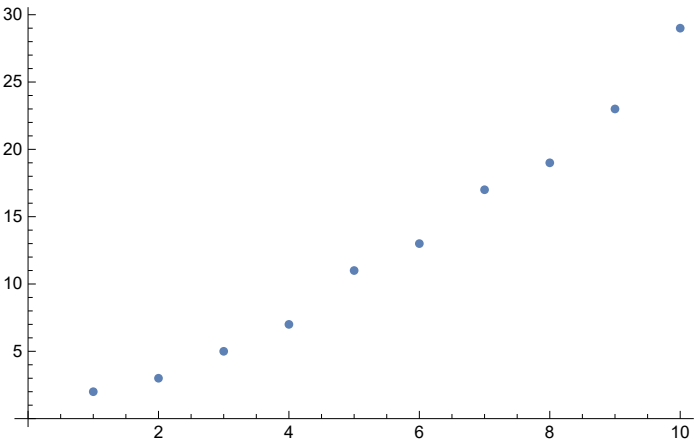
Out[13]=
```
-1 + Tan[1]
```

In[14]:=
```
a = Table[Prime[i], {i, 10}]
```

Out[14]=
```
{2, 3, 5, 7, 11, 13, 17, 19, 23, 29}
```

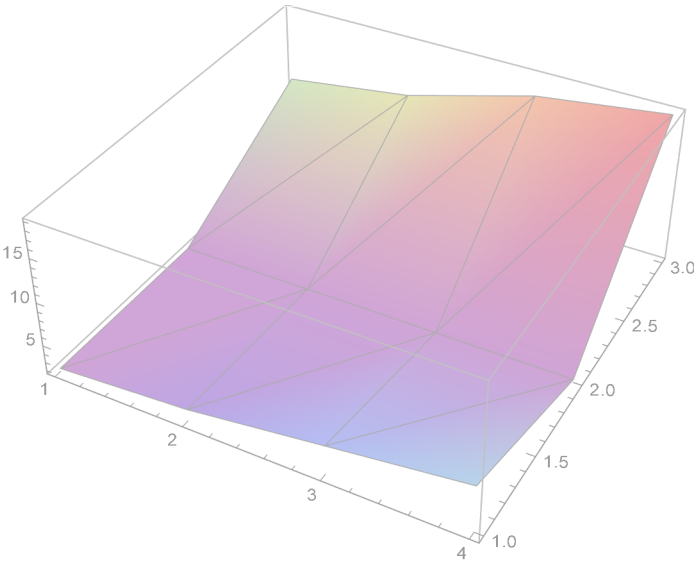
In[15]:=
```
ListPlot[a]
```

Out[15]=



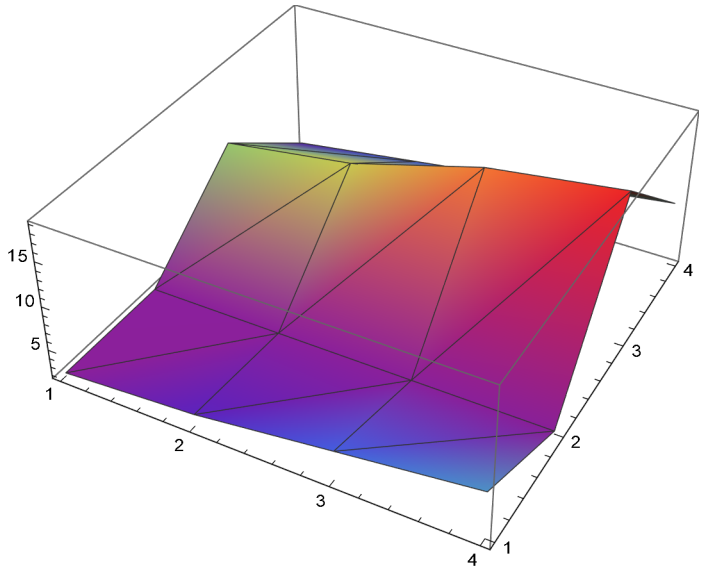

```
ListPlot3D[{{2, 3, 5, 7}, {2, 2, 2, 2}, {11, 13, 17, 19}},
 Mesh → All, ColorFunction → "Rainbow"]
```

Out[22]=

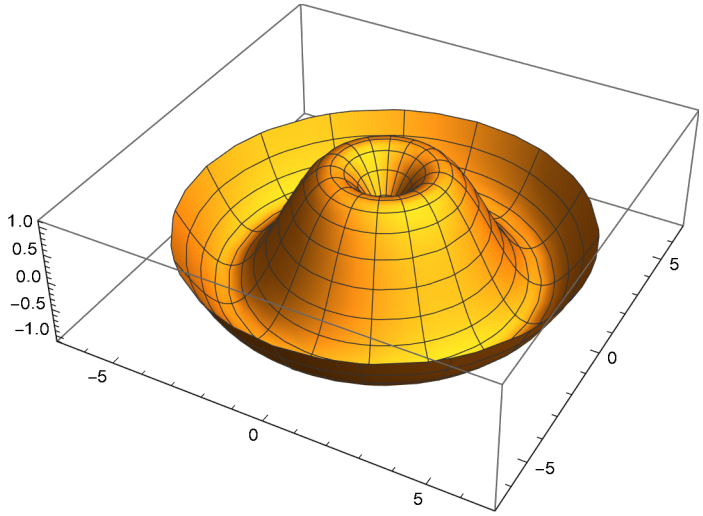


In[26]:=
```
p = ListPlot3D[{{2, 3, 5, 7}, {2, 2, 2, 2}, {11, 13, 17, 19}, {3, 5, 7, 9}},
  Mesh → All, ColorFunction → "Rainbow"]
```

Out[26]=

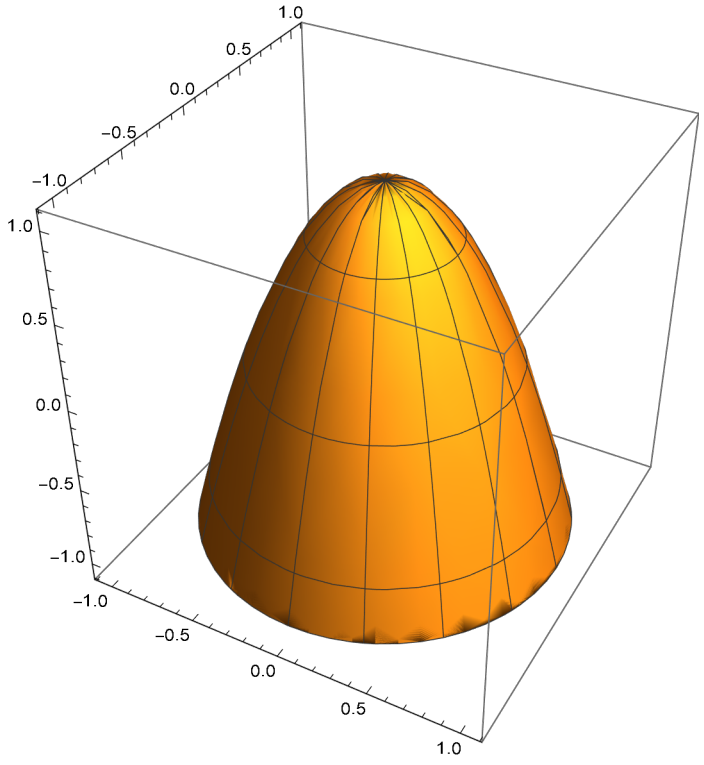


In[19]:=
```
RevolutionPlot3D[{Sin[t]}, {t, 0, 2 Pi}]
```



In[24]:=
```
q = RevolutionPlot3D[{Sin[t], Cos[2 t]}, {t, 0, 2 Pi}]
```

Out[24]=



In[27]:=
```
Show[p, q]
```

Out[27]=