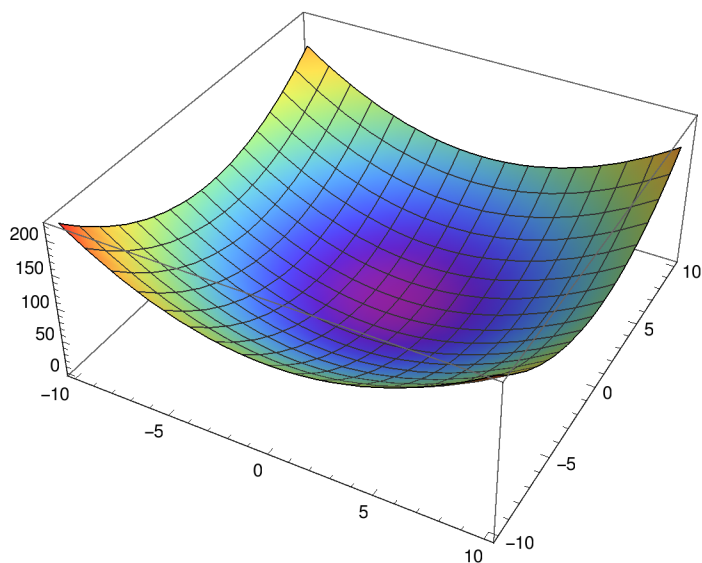


```
In[8]:= SetOptions[Plot3D(*Or whichever plot you desire*),  
          ColorFunction->"Rainbow"(*One of many options*)];
```

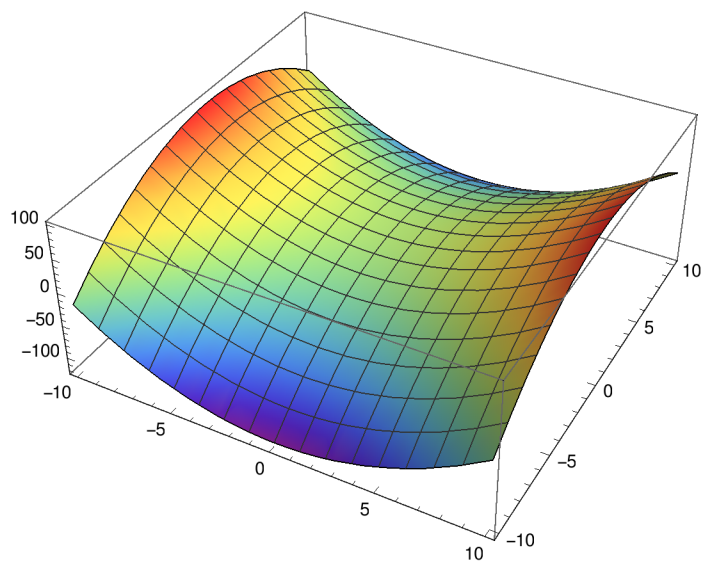
(3 a)

```
Plot3D[x^2 + (y - 1)^2, {x, -10, 10}, {y, -10, 10}]
```



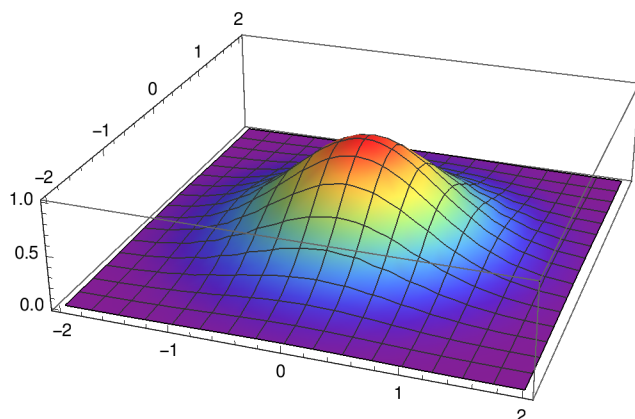
(3 b)

```
Plot3D[x^2 - (y - 1)^2, {x, -10, 10}, {y, -10, 10}]
```



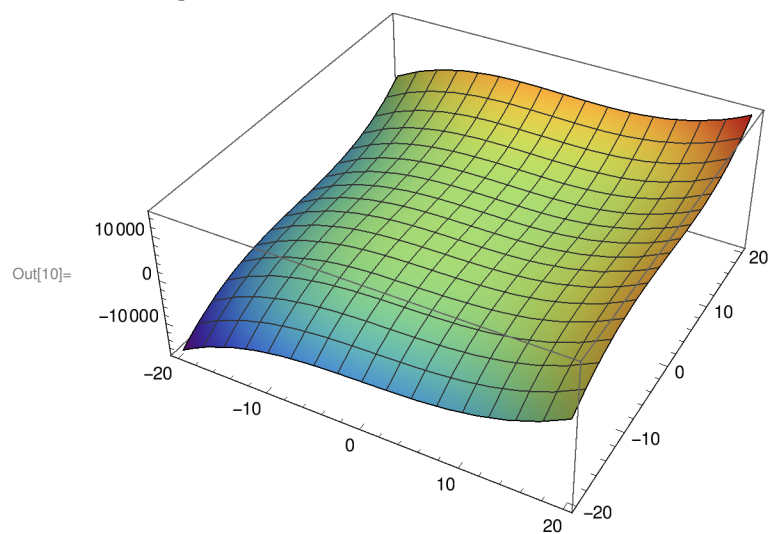
(3 c)

```
Plot3D[Exp[-x^2 - y^2], {x, -2, 2}, {y, -2, 2}, BoxRatios -> Automatic]
```



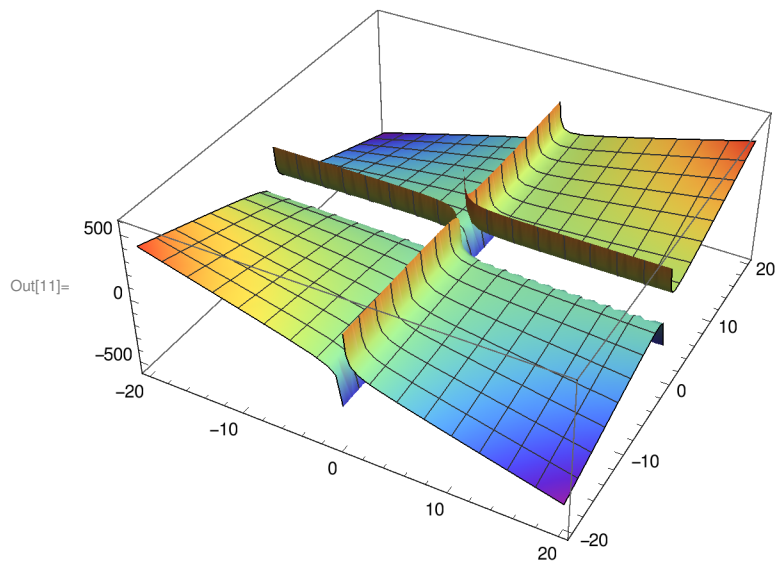
(3 d)

```
In[10]:= Plot3D[x^3 + y^3 - 3 x * y, {x, -20, 20}, {y, -20, 20}]
```



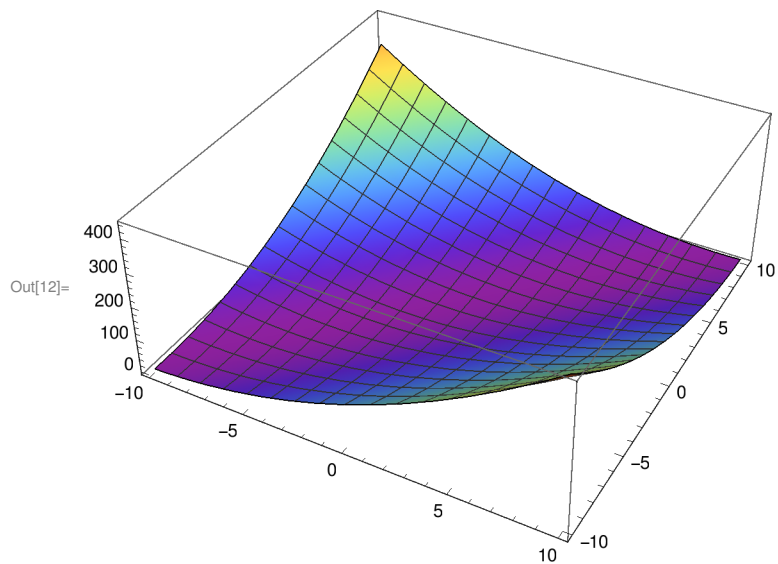
(3 e)

In[11]:= `Plot3D[x * y + 50 / x + 50 / y, {x, -20, 20}, {y, -20, 20}]`



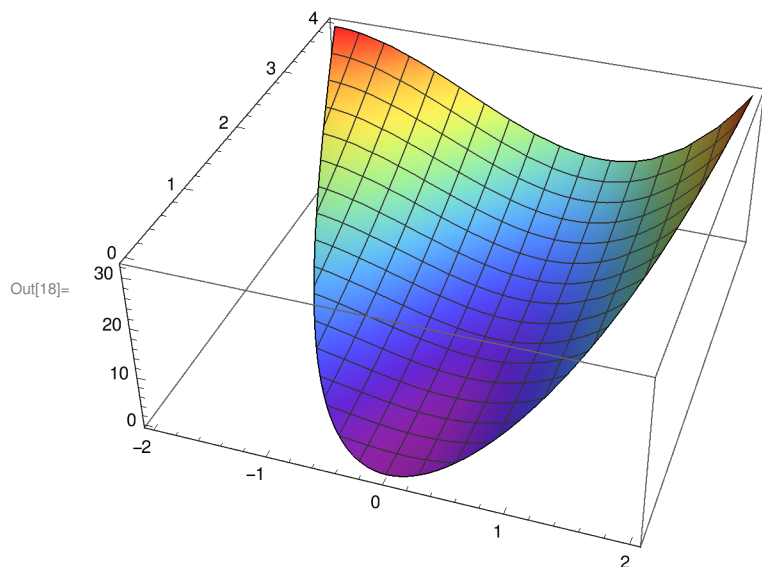
(3 f)

In[12]:= `Plot3D[(x - y + 1)^2, {x, -10, 10}, {y, -10, 10}]`

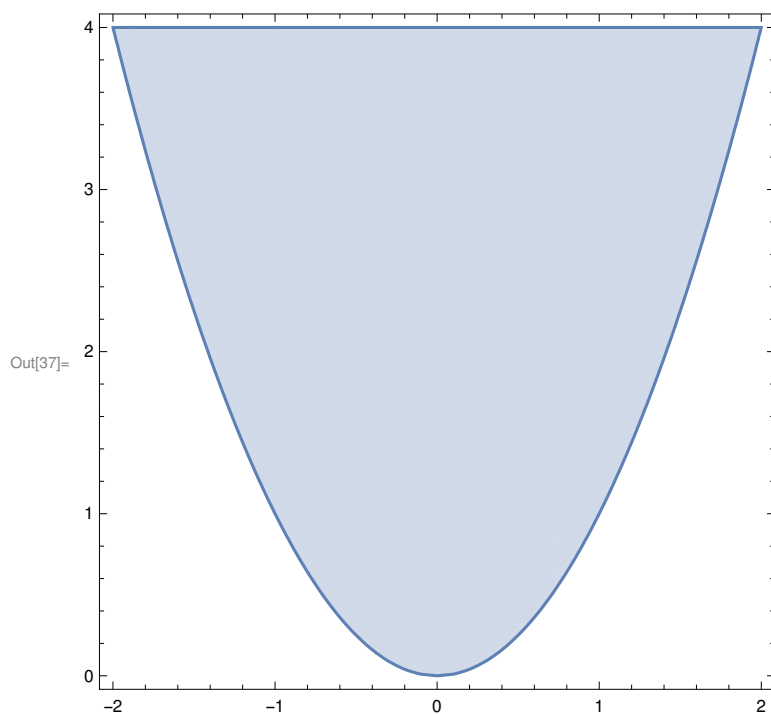


(4 a)

```
In[18]:= Plot3D[{2 x^3 + 4 x^2 + y^2 - 2 x y}, {x, -2, 2},
  {y, 0, 4}, RegionFunction -> Function[{x, y, z}, x^2 ≤ y && y < 4]]
```

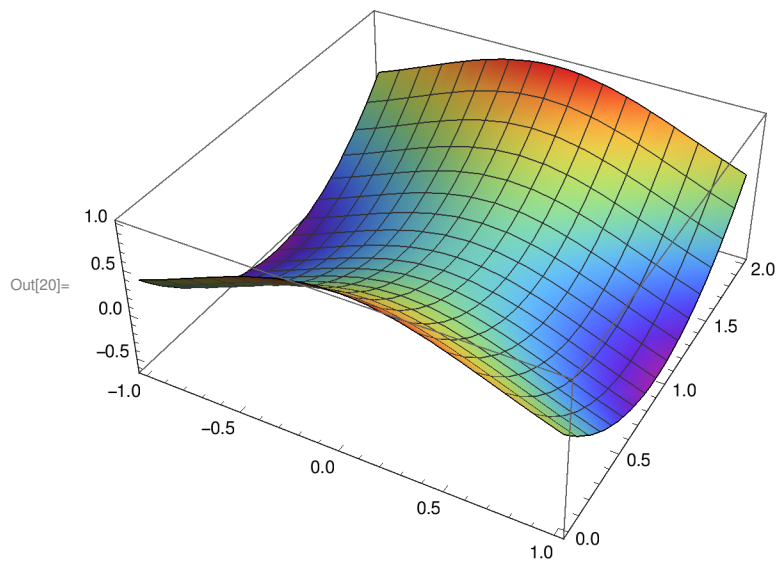


```
In[37]:= RegionPlot[x^2 ≤ y && y < 4, {x, -2, 2}, {y, 0, 4}, AspectRatio -> Automatic]
```

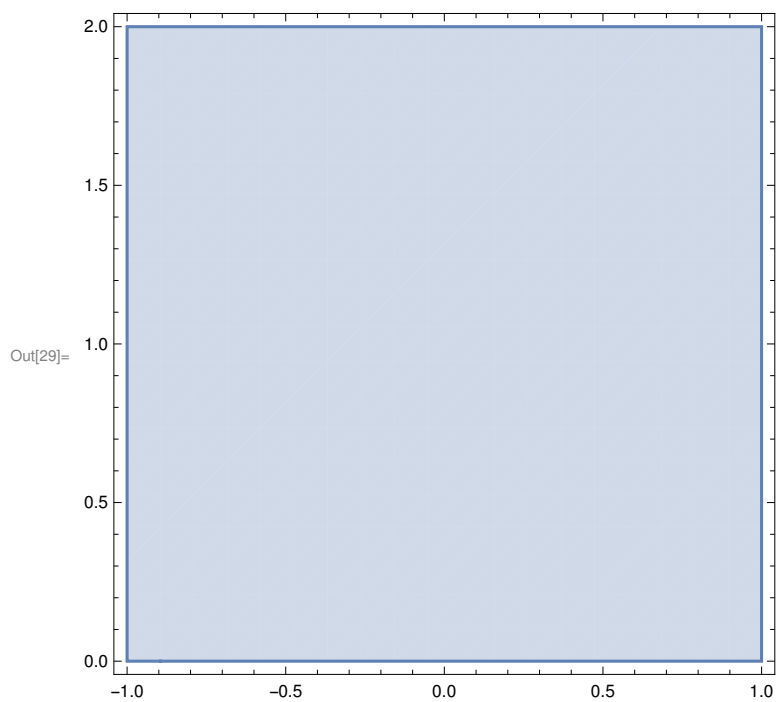


(4 b)

```
In[20]:= Plot3D[{y^2 - 2 y + Exp[-x^2]}, {x, -1, 1}, {y, 0, 2}]
```

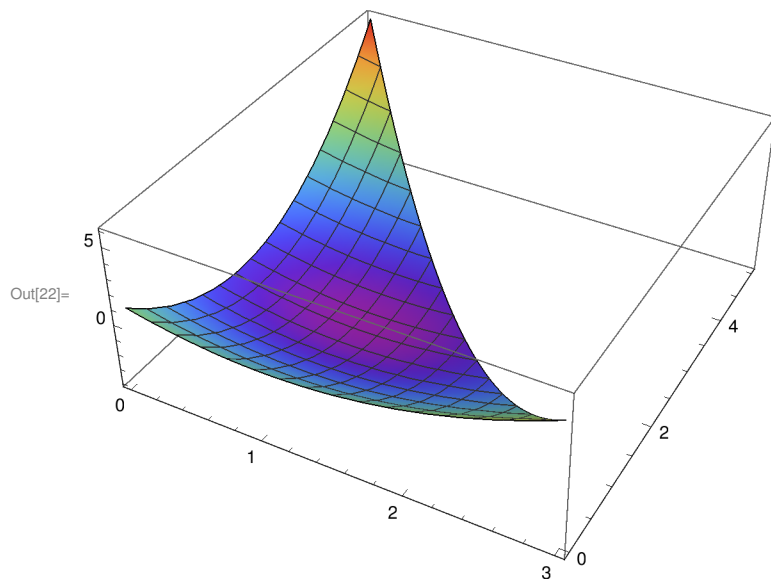


```
In[29]:= RegionPlot[x ≤ 1 && y < 2, {x, -1, 1}, {y, 0, 2}]
```

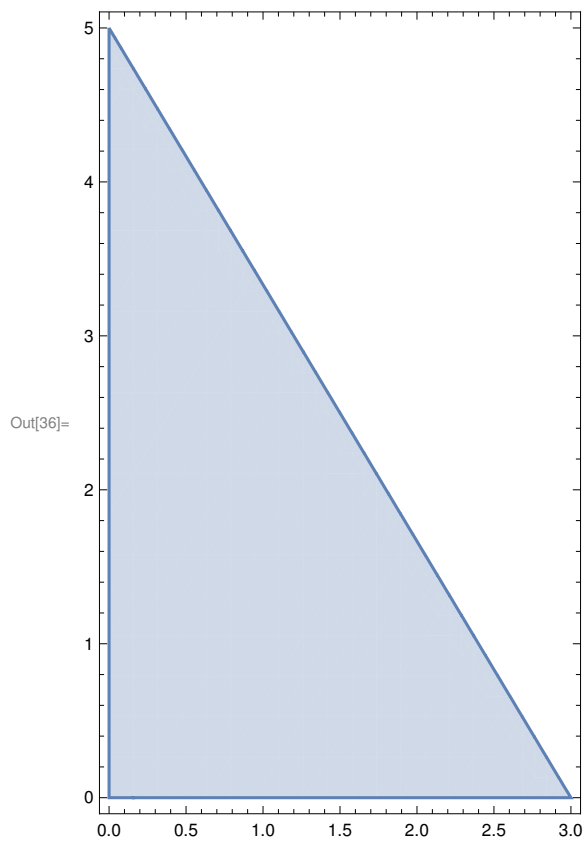


(4 c)

```
In[22]:= Plot3D[{x^2 + y^2 - 2 x - 4 y + 1}, {x, 0, 3},
  {y, 0, 5}, RegionFunction -> Function[{x, y, z}, 3 y < 15 - 5 x]]
```

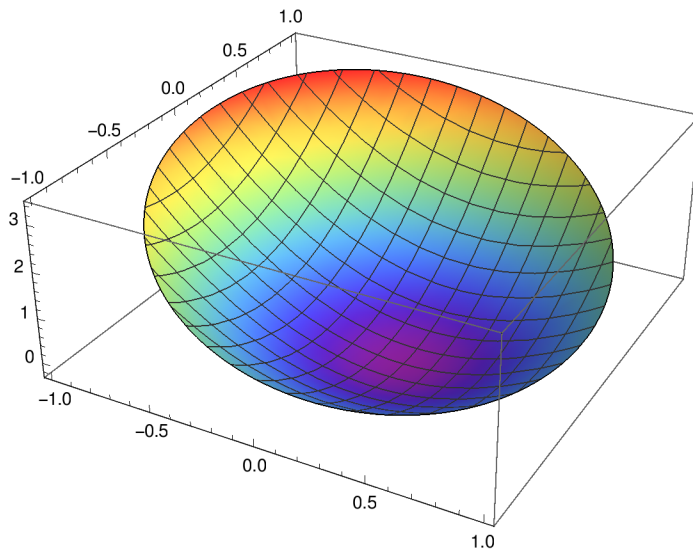


```
In[36]:= RegionPlot[3 y < 15 - 5 x, {x, 0, 3}, {y, 0, 5}, AspectRatio -> Automatic]
```

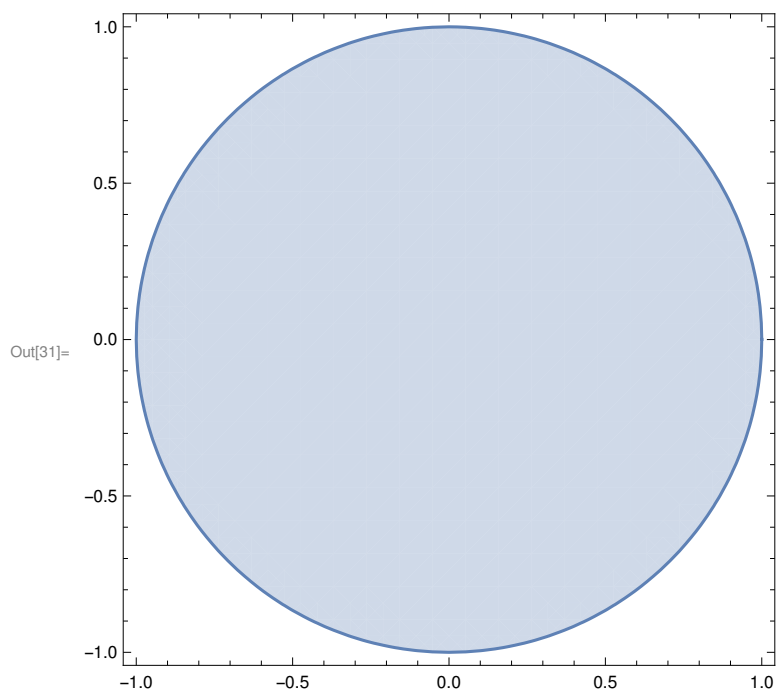


(4 d)

```
In[24]:= Plot3D[ $2x^2 + 2y^2 - x + y$ , {x, -1, 1}, {y, -1, 1},  
RegionFunction -> Function[{x, y, z},  $x^2 + y^2 < 1$ ]]
```

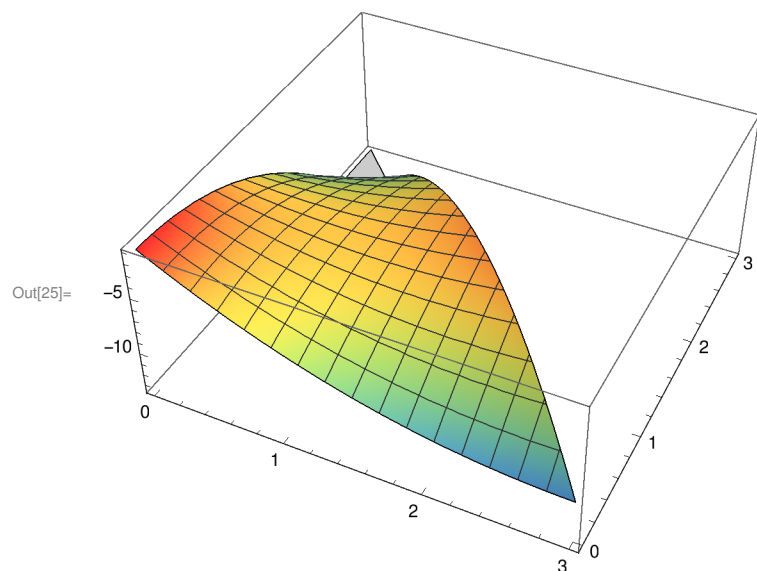


```
In[31]:= RegionPlot[ $x^2 + y^2 < 1$ , {x, -1, 1}, {y, -1, 1}]
```



(4 e)

```
In[25]:= Plot3D[{x^2 - 2 y^2 + 4 x y - 6 x - 1}, {x, 0, 3},
  {y, 0, 3}, RegionFunction -> Function[{x, y, z}, y < 3 - x]]
```



```
In[34]:= RegionPlot[y < 3 - x, {x, 0, 3}, {y, 0, 3}]
```

