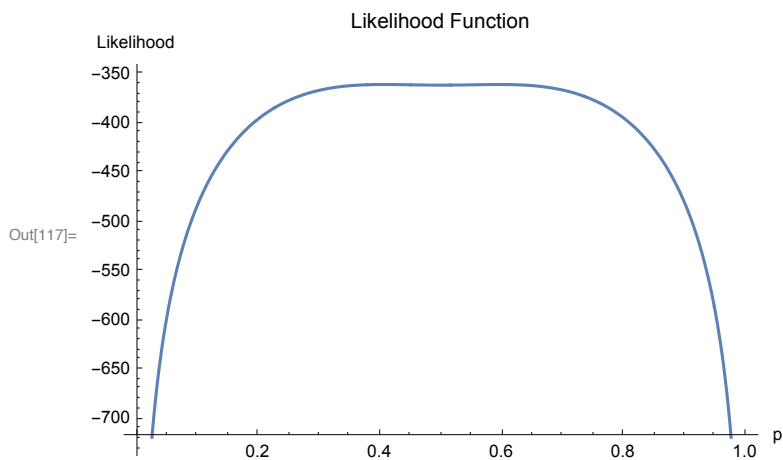
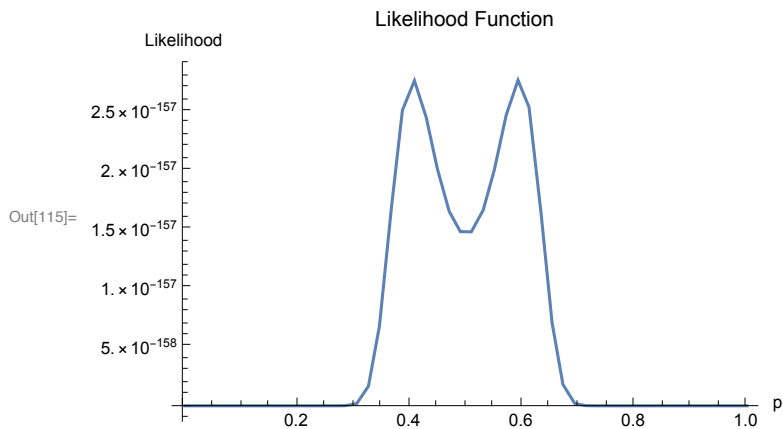


```

In[114]:= f[p_] := (((p^4) + (1 - p)^4)^21) *
  (((p^4) (1 - p) + p (1 - p)^4)^26) * (((p^4) ((1 - p)^2) + (p^2) (1 - p)^4)^24) *
  (((p^4) ((1 - p)^3) + (p^3) (1 - p)^4)^39);
graphic = Plot[f[p], {p, 0, 1}, PlotLabel -> "Likelihood Function",
  AxesLabel -> {"p", "Likelihood"}]
g[p_] := Log10[(((p^4) + (1 - p)^4)^21) * (((p^4) (1 - p) + p (1 - p)^4)^26) *
  (((p^4) ((1 - p)^2) + (p^2) (1 - p)^4)^24) *
  (((p^4) ((1 - p)^3) + (p^3) (1 - p)^4)^39)];
graphic = Plot[g[p], {p, 0, 1}, PlotLabel -> "Likelihood Function",
  AxesLabel -> {"p", "Likelihood"}]

```



```

In[112]:= N@ArgMax[{f[a], a > 0.5}, a]

```

Out[112]= 0.595131

```

In[113]:= N@ArgMax[{g[a], a > 0.5}, a]

```

Out[113]= 0.595131

```

In[3]:= Sum[Binomial[3 + k, k] * 0.41^k * 0.59^4, {k, 0, 3}]

```

Out[3]= 0.690619

```
In[9]:= Sum[Binomial[3 + k, k] * 0.41^k * 0.59^4 * k, {k, 0, 3}] +  
        Sum[Binomial[3 + k, k] * 0.59^k * 0.41^4 * k, {k, 0, 3}]
```

```
Out[9]= 1.71882
```

```
In[11]:= N@ (26 + 2 * 24 + 3 * 39) / 110
```

```
Out[11]= 1.73636
```

```
In[14]:= Solve[Sum[Binomial[3 + k, k] * (1 - p)^k * p^4 * k, {k, 0, 3}] +  
              Sum[Binomial[3 + k, k] * p^k * (1 - p)^4 * k, {k, 0, 3}] == 1.7363636363636363, p]
```

```
Out[14]= {{p -> -0.316484 - 0.308104 I}, {p -> -0.316484 + 0.308104 I}, {p -> 0.418984},  
          {p -> 0.581016}, {p -> 1.31648 - 0.308104 I}, {p -> 1.31648 + 0.308104 I}}
```