

```
87     wetGrass = false;
88 }
89 }
90
91 int main(int argc, const char * argv[]) {
92
93     //Number of trials that we will run, I set this to be a high number to get a clearer picture
94     //of the probability of (Rain|Sprinkler = True)
95     int numTrials = 10;
96
97     //Gibbs Sampling requires that the values be randomly assigned prior to the trials
98     //Since the boolean values are initially set to false, there is an equal chance (50%)
99     //of these variables being either true or false.
100
101     if((random()%2) == 1){
102         cloudy = true;
103     }
104     if((random()%2) == 1){
105         rain = true;
106     }
107     if((random()%2) == 1){
108         wetGrass = true;
109     }
110 }
```

Number of Trials: 10  
Rains: 10  
Probability of (Rain|Sprinkler = True): 1  
Program ended with exit code: 0

10 Trials

```
87     wetGrass = false;
88 }
89 }
90
91 int main(int argc, const char * argv[]) {
92
93     //Number of trials that we will run, I set this to be a high number to get a clearer picture
94     //of the probability of (Rain|Sprinkler = True)
95     int numTrials = 100;
96
97     //Gibbs Sampling requires that the values be randomly assigned prior to the trials
98     //Since the boolean values are initially set to false, there is an equal chance (50%)
99     //of these variables being either true or false.
100
101     if((random()%2) == 1){
102         cloudy = true;
103     }
104     if((random()%2) == 1){
105         rain = true;
106     }
107     if((random()%2) == 1){
108         wetGrass = true;
109     }
110 }
```

Number of Trials: 100  
Rains: 83  
Probability of (Rain|Sprinkler = True): 0.83  
Program ended with exit code: 0

100 Trials

```
87     wetGrass = false;
88 }
89 }
90
91 int main(int argc, const char * argv[]) {
92
93     //Number of trials that we will run, I set this to be a high number to get a clearer picture
94     //of the probability of (Rain|Sprinkler = True)
95     int numTrials = 1000;
96
97     //Gibbs Sampling requires that the values be randomly assigned prior to the trials
98     //Since the boolean values are initially set to false, there is an equal chance (50%)
99     //of these variables being either true or false.
100
101     if((random()%2) == 1){
102         cloudy = true;
103     }
104     if((random()%2) == 1){
105         rain = true;
106     }
107     if((random()%2) == 1){
108         wetGrass = true;
109     }
110 }
```

Number of Trials: 1000  
Rains: 303  
Probability of (Rain|Sprinkler = True): 0.303  
Program ended with exit code: 0

1000 Trials

```
87     wetGrass = false;
88 }
89 }
90
91 int main(int argc, const char * argv[]) {
92
93     //Number of trials that we will run, I set this to be a high number to get a clearer picture
94     //of the probability of (Rain|Sprinkler = True)
95     int numTrials = 10000;
96
97     //Gibbs Sampling requires that the values be randomly assigned prior to the trials
98     //Since the boolean values are initially set to false, there is an equal chance (50%)
99     //of these variables being either true or false.
100
101     if((random()%2) == 1){
102         cloudy = true;
103     }
104     if((random()%2) == 1){
105         rain = true;
106     }
107     if((random()%2) == 1){
108         wetGrass = true;
109     }
110 }
```

Number of Trials: 10000  
Rains: 3064  
Probability of (Rain|Sprinkler = True): 0.3064  
Program ended with exit code: 0

## 10000 Trials

```
87     wetGrass = false;
88 }
89 }
90
91 int main(int argc, const char * argv[]) {
92
93     //Number of trials that we will run, I set this to be a high number to get a clearer picture
94     //of the probability of (Rain|Sprinkler = True)
95     int numTrials = 100000;
96
97     //Gibbs Sampling requires that the values be randomly assigned prior to the trials
98     //Since the boolean values are initially set to false, there is an equal chance (50%)
99     //of these variables being either true or false.
100
101     if((random()%2) == 1){
102         cloudy = true;
103     }
104     if((random()%2) == 1){
105         rain = true;
106     }
107     if((random()%2) == 1){
108         wetGrass = true;
109     }
110 }
```

Number of Trials: 100000  
Rains: 30246  
Probability of (Rain|Sprinkler = True): 0.30246  
Program ended with exit code: 0

## 100000 Trials

```
87     wetGrass = false;
88 }
89 }
90
91 int main(int argc, const char * argv[]) {
92
93     //Number of trials that we will run, I set this to be a high number to get a clearer picture
94     //of the probability of (Rain|Sprinkler = True)
95     int numTrials = 1000000;
96
97     //Gibbs Sampling requires that the values be randomly assigned prior to the trials
98     //Since the boolean values are initially set to false, there is an equal chance (50%)
99     //of these variables being either true or false.
100
101     if((random()%2) == 1){
102         cloudy = true;
103     }
104     if((random()%2) == 1){
105         rain = true;
106     }
107     if((random()%2) == 1){
108         wetGrass = true;
109     }
110 }
```

Number of Trials: 1000000  
Rains: 300184  
Probability of (Rain|Sprinkler = True): 0.300184  
Program ended with exit code: 0

## 1000000 Trials

```
87     wetGrass = false;
88 }
89 }
90
91 int main(int argc, const char * argv[]) {
92
93     //Number of trials that we will run, I set this to be a high number to get a clearer picture
94     //of the probability of (Rain|Sprinkler = True)
95     int numTrials = 1000000;
96
97     //Gibbs Sampling requires that the values be randomly assigned prior to the trials
98     //Since the boolean values are initially set to false, there is an equal chance (50%)
99     //of these variables being either true or false.
100
101     if((random()%2) == 1){
102         cloudy = true;
103     }
104     if((random()%2) == 1){
105         rain = true;
106     }
107     if((random()%2) == 1){
108         wetGrass = true;
109     }
110 }
```

Number of Trials: 1000000  
Rains: 3004430  
Probability of (Rain|Sprinkler = True): 0.300443  
Program ended with exit code: 0

## 1000000 Trials

```
87     wetGrass = false;
88 }
89 }
90
91 int main(int argc, const char * argv[]) {
92
93     //Number of trials that we will run, I set this to be a high number to get a clearer picture
94     //of the probability of (Rain|Sprinkler = True)
95     int numTrials = 10000000;
96
97     //Gibbs Sampling requires that the values be randomly assigned prior to the trials
98     //Since the boolean values are initially set to false, there is an equal chance (50%)
99     //of these variables being either true or false.
100
101     if((random()%2) == 1){
102         cloudy = true;
103     }
104     if((random()%2) == 1){
105         rain = true;
106     }
107     if((random()%2) == 1){
108         wetGrass = true;
109     }
110 }
```

Number of Trials: 10000000  
Rains: 30010632  
Probability of (Rain|Sprinkler = True): 0.300106  
Program ended with exit code: 0

## 100000000 Trials

```
87     wetGrass = false;
88 }
89 }
90
91 int main(int argc, const char * argv[]) {
92
93     //Number of trials that we will run, I set this to be a high number to get a clearer picture
94     //of the probability of (Rain|Sprinkler = True)
95     int numTrials = 100000000;
96
97     //Gibbs Sampling requires that the values be randomly assigned prior to the trials
98     //Since the boolean values are initially set to false, there is an equal chance (50%)
99     //of these variables being either true or false.
100
101     if((random()%2) == 1){
102         cloudy = true;
103     }
104     if((random()%2) == 1){
105         rain = true;
106     }
107     if((random()%2) == 1){
108         wetGrass = true;
109     }
110 }
```

Number of Trials: 100000000  
Rains: 299983611  
Probability of (Rain|Sprinkler = True): 0.299984  
Program ended with exit code: 0

## 1000000000 Trials