1. Prior Sampling Results:

P(c=t) = 0.48

P(c=t|r=t) = 0.75

P(s=t|w=t) = 0.454545454545

P(s=t|c=t,w=t) = 0.166666666667

2. P(c=t) = 0.5

This value is very close to that obtained by prior sampling.

P(c=t|r=t) = p(r=t|c=t)\*p(c=t)

= (.8 \* .5) = .4

This value is very different from that obtained by prior sampling. The discrepancy could be caused by the low number of samples used in prior sampling (only 25 complete sample events).

P(s=t|w=t) = P(w=t|s=t)\*p(s=t)

=P(w=t|r=t,s=t)P(r=t)P(s=t) + P(w=t|r=f,s=t)P(r=f)P(s=t)

= .99\*.5\*.3 + .90\*.5\*.3

= 0.2835

This value is also different from prior sampling results, possibly caused by outlying values in our small sample size.

p(s=t|c=t,w=t) = P(w=true|s=true)P(s=true|c=true) / P(w=true)

=.972\*.1 / .5989

= 0.1624

This value very closely matches that obtained by prior sampling.

3. Rejection Sampling Results:

P(c=true) = 0.494949494949

P(c=true|rain=true) = 0.4375

P(s=true|w=true) = 0.296296296296

P(s=true|c=true,w=true) = 0.208333333333

4. Overall, rejection sampling seemed to be more accurate than prior sampling, except for P(s=true|c=true,w=true), where rejection sampling was a little closer to the expected value. I would expect that rejection sampling would be more accurate in this situation, because of the small, finite number of samples given.