Problem 3

a

This is the probability that at most one parent have contracted influenza. So the probability either the mother alone, the father alone, or neither parent has contracted the flu.

b

Let F be the event that the father contracted cryptosporidiosis and M be the event that the mother contracted cryptosporidiosis. Using this notation, we are given P(F ??? M) = 0.21, P(F ??? M) = 0.05, and P(F) = 0.09. Note that the event in which either the mother or the father has contracted cryptosporidiosis is denoted by F ??? M, or equivalently, the event in which least one parent contracted the disease. We are given P(F ??? M) is 0.21.

c

Using the same notation as in part b, $M???F^c$ = {mother contracted cryptosporidiosis, but father has not} By part 1f, we know that P($M???F^c$) = P(M) ??? P(M ??? F) = 0.17 ??? 0.05 = 0.12