1. .
   1. P(M|T<80) = [P(T<80|M) \* P(M)]/P(T<80) =  
      [P(T<80|M)\*P(M)]/[P(M)P(T<80|M)+P(S)P(T<80|S)] = 0.2963
   2. P(T) = P(M|T<80) + P(S|T<80) = 0.30741
   3. P(T<80) = P(M)\*P(T<80|M) + P(S)\*P(T<80|S) = 0.135   
      0.135^3 = 0.00246
2. 1 – P(A)-P(B) = 0.1  
   Therefore P is possibly a probability function
3. P(x) = 0.3 0 <= x <= 10  
   the integral of P(x) = 0.3x from 0 to 10 which equals 3.0, therefore this is definitely not a valid probability density function

