Problem 2-58

(a) \( P(A) = \frac{82}{100} \)

(b) \( P(B) = \frac{90}{100} \)

(c) \( P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{80/100}{90/100} = \frac{80}{90} = \frac{8}{9} \)

(d) \( P(B|A) = \frac{P(A \cap B)}{P(A)} = \frac{80/100}{82/100} = \frac{80}{82} = \frac{40}{41} \)

(e) \( P(B|A) = \frac{40}{41} \)

(f) \( P(A|B') = \frac{P(A \cap B')}{P(B')} = \frac{2/100}{10/100} = \frac{2}{10} = \frac{1}{5} \)

Problem 2-62

(a) Let \( D_i \) = \( i^{th} \) chip selected is defective, \( i = 1, 2 \). \( P(D_1) = \frac{20}{100} = \frac{1}{5} \).

(b) \( P(D_2|D_1) = \frac{19}{99} \)

(c) \( P(D_1 \cap D_2) = P(D_2|D_1)P(D_1) = \frac{19}{99} \frac{1}{5} = \frac{19}{495} = .0384. \)

Note that you can get this from a tree pretty easily.

(d) Same as (a). The answer to (c) also would change to .04.