2.3 # 1, 3, 7, 9, 13, 15, 17, 18, 20,

HW #5 23, 24, 36, 37, 19, 32

1) $\dfrac{0.2}{0.8} = 0.25$

3) A) $P(C_1) = \dfrac{2}{10} = 0.2$ B) $P(C_2 | B_1) = 2/9 = 0.222$

c) $P(C_2 | C_1) \dfrac{1}{9} = 0.111$

7) A) $0.2 * 0.15 = 0.03$ B) $[1 - P(A)][1 - P(B)]$

c) $0.2 + 0.15 - 0.03$ $(1 - 0.2)(1 - 0.15)$

$\qquad = 0.32$ $= 0.68$

9) $\dfrac{P(B \cap A)}{P(A)} - \dfrac{0.05}{0.12} = 0.417$

13) A) $P(A) + P(B) = 0.9 + 0.8 = 0.98$ B) $1 - .98$

$\quad - P(A)P(B)$ $-(0.9)(0.8)$ $= 0.02$

C) $P(A)P(B)$ D) $P(A)(1 - P(B))$

$\qquad = 0.72$ $= 0.18$

15) A) $\dfrac{88/600}{(88 + 12)/600} = \dfrac{88/600}{100/600} = 0.88$

B) $\dfrac{88/600}{(88 + 165 + 260)/600} = \dfrac{88/600}{513/600} = 0.172$

13) D) $(0.493)(513/600)$

$1-(260+40)/600$

$=0.843$

17) A) $80/100 = 0.80$ B) $70/100 = 0.70$

C) $\dfrac{56/100}{80/100} = 56/80 = 0.7$

D) $56/100 = .56$

18) A) $150/265 = 0.566$ B) $35/100 = 0.233$

C) $85/115 = 0.739$ D) $85/335 = 0.254$

e) $215/265 = 0.811$

20) A) $(0.005)0.7 = 0.0035$ b) $0.005(.7)$

$= 0.008$ $\dfrac{0.005(0.7)}{.008}$ $\div (.01)(.2 \div$

C) $.025(0.1)$

$= 0.4375$ $= 0.008$

23) D) $3/9 = 1/3(1-3/10) = 7/30 = 0.233$

e) $.067 + 0.233 = 0.300$

f) $0.222 \neq .300$

23) A) $3/10 = .300$ B) $2/9 = 0.222$ C) $2/9(3/10)$

$= 0.067$

21) A) $300/1000 = .3000$ B) $299/999 = 0.299$

C) $299/999 (3/10) = 0.898$

D) $300/999 = 100/333 (7/10) = 70/333 = 0.2102$

E) $0.0898 + 0.2102 = 0.3000$

F) $\dfrac{(0.2993)(0.3)}{0.3} = 0.2993$

g) A & B Not Independent $.2993 \neq .3000$

36) A) $(1-0.05)(1-0.03) = 0.9215$

B) $(1-p)(1-p)^2 = 0.91 - \sqrt{0.9} = 0.05$

C) $(1-p)^2$ $1 - \sqrt[3]{0.9} = 0.035$

37) A) $1 - (0.08)(0.12) = 0.99$

B) $1 - p^2 = 0.99$ $\sqrt{1 - 0.99} = 0.10$

C) $1 - p^3$ $p = \sqrt[3]{1 - 0.99} = 0.215$

D) $1 - (0.5)^n$ $(0.5)^n \leq 0.01$ $n = 7$

19) a) $0.30 + .04 - .16 = .50$

b) $0.16 + .04 + .2 = 0.40$

c) $.30 + .01 + .2 = 0.51$

d) $0.16/0.50 = 0.32$

e) $\dfrac{0.04}{0.04 + 0.01 + 0.05}$ $= 0.40$

32)

A)
$$\frac{0.9995\,(0.0002)}{0.995(.0002)+(1-0.99)(1-0.0002)} = 0.0195$$

B) $1 - P(HIB^c) = 0.9805$

C)
$$\frac{.99(1-0.0002)}{0.99(1-0.0002)+(1-0.995)(.0002)} = 0.99999$$

D) Most pass with no Flaw

E) $0.995(0.0002) + 0.01(.9998)$
$$= 0.01$$