Math 151 – Sample Exam III Answers– Fall 2007 – Louis Gross

1. (a) Frequency of A = .3 = p and frequency of a = .7 = q so fraction that is Aa is 2pq =.42 so percentage that is Aa is 42%
   (b) frequency of a = .7

2. R= event an infection is resistant to rifampin
   E = event an infection is resistant to ethambutol
   P(R) = .35 P(E) = .5 and P(R ∩ E) = .15
   (a) P(R – E) + P(E – R) = .2 + .35 = .55
   (b) P(R | E) =.3
   (c) $P(R|\overline{E})$ = .4

3. (a) {AA, AB, AC, BB, BA, BC, CC, CA, CB }
   (b) {A+, A-, B+, B-, AB+, AB-, O+, O-}

4. (a) 130/470 = .277 (b) 140/470 = .300

5. S = event person had a stroke
   N = event person had numbness on one side of body
   P (S) =.6 P(N | S) =.9 $P(N|\overline{S})$ = .4
   (a) $P(S \cap \overline{N}) = P(\overline{N}|S)P(S)$ = .06
   (b) $P(S|\overline{N}) = \dfrac{P(\overline{N}|S)P(S)}{P(\overline{N})} = \dfrac{.06}{.06 + .24} = .2$

6. (a) P(Jill is Aa) = 1/2
   (b) P(child is aa) = 3/4

7. (a) .22 or 22% (b) .02 or 2% (c) .5/.58 = .70