A.P. Statistics
Assignment 4.4

Remember to show your thinking through your work.

1)   A cell phone company buys computer chips from a supplier. The supplier sends a shipment containing 3% defective chips. Each cell phone uses 3 chips selected independently. What is the probability that all 3 chips will work properly?

2)   Consider the data in the table below:

Education / Age Group	Age 25 to 34	Age 35 to 54	Age 55+	Total
Did not complete High School	4474	9155	14224	27853
Completed High School	11546	26481	20060	58087
1 to 3 years of college	10700	22618	11127	44445
4 or more years of college	11066	23183	10596	44845
Total	37786	81435	56008	175230

Let A = {The person chosen completed 4 or more years of college}
Let B = {The person chosen is 55 years old or older}

a)   Explain why P(A) = 0.256

b)   Find P(B)

c)   Find the probability that the person chosen is at least 55 years old and has completed 4 or more years of college. That is find P(A and B).

d)   Find P(A)P(B).

e)   Are A and B independent? Explain your response.

3) When the Gallup Company conducts a telephone survey, they use a random digit dialer to call potential respondents. The probability that they reach a live person is approximately 0.24.

a) What is the probability that they do not reach a live person in five phone calls?

b) What assumption must you make in order to answer part a?

c) What is the probability that you reach a live person in each of the first five calls?

4) For each of the following situations, state whether the given assignment of probabilities is possible or not. Explain your reasoning.

a) When a quarter is spun, P(Heads) = 0.52 and P(Tails) = 0.48.

b) When two coins are tossed, P(HH)=0.4, P(HT)=0.4, P(TH)=0.4, and P(TT)=0.4.

c) When a die is rolled, the number of spots on the up-face has P(1)=1/2, P(2)=0, P(3)=0, P(4)=1/6, P(5)=1/6, and P(6)=1/6.

5) Lucas is applying to both Stanford and Cal-poly. The probability that he gets accepted to Stanford is 0.4. The probability that he gets accepted to Cal-Poly is 0.3. The probability that he is accepted to both schools is 0.15.

a) What is the probability that he is accepted to one of the two schools?

b) What is the probability that is does not get accepted at either school?