

## Ch4 Homework

1. A survey of 20 random Bay Area adults on the number of paid jobs they have. Find the mean and the standard deviation using the probability distribution table below.

x (number of paid jobs)	P(x)	$xP(x)$	$x^2P(x)$	
0	.05	0	0	mean=1.40 sigma=0.663
1	.55	0.55	0.55	
2	.35	0.70	1.40	
3	.05	0.15	0.45	

2. According to a national research, 53% of college graduates are either unemployed or working in a job that doesn't require a bachelor degree. In a group of 10 students. Find the mean and standard deviation of students who will be either unemployed or working in a job that doesn't require a bachelor degree.

$$P=0.53 \quad n=10 \quad \text{mean}=5.3 \quad \text{sigma}=1.58$$

3. A local club plans to invest \$10,000 to host a baseball game. They expect to sell tickets worth \$25,000. If it rains on the day of game, they won't sell any tickets and the club will lose all the money invested. There is a 30% chance of rain on the day of the game. Should the local club invest into the hosting the baseball game or not? Explain.

$$0.7 \cdot 15000 + 0.3 \cdot -10000 = 7500 \quad \text{yes they should invest}$$

4. A company makes electronic gadgets. One out of every 60 gadgets is faulty, but the company doesn't know which ones are faulty until a buyer complains. Suppose the company makes a \$30 profit on the sale of any working gadget, but suffers a loss of \$100 for every faulty gadget because they have to repair or replace the unit. Find the expected profit or loss in selling one million gadgets.

$$P = 59/60 \cdot 30 + 1/60 \cdot -100 = 1670/60 = 27.83 \text{ million}$$

5. According to a state report, 14.5% of CA residents live in poverty. In a group of 10 randomly selected CA residents, find the probability that

- Half of them live in poverty. 0.00738025
- None of them live in poverty. 0.20876666
- At least 1 lives in poverty. 0.79123334
- At most 1 lives in poverty. 0.56281539

6. A state-funded research reveals a shocking finding that 70% California community college students fail to graduate or transfer. In a group of 10 students,

- Find the percent that none of them fail to graduate or transfer. 0.0000059
- Find the percent that all of them fail to graduate or transfer. 0.02824752
- Find the percent that less than half of them fail to graduate or transfer. 0.15026833
- Find the percent that more than half of them fail to graduate or transfer. 0.95265101