

Seminar 17

1. Students in a large accounting class were asked to rate the course on a scale from 1 (poor) to 5 (excellent). The accompanying table shows proportions of students rating the course in each category.

Rating	1	2	3	4	5
Proportion	0.07	0.19	0.28	0.30	0.16

Find the mean and standard deviation of the rating.

2. An investor is considering three strategies for a \$1,000 investment. The probable return are estimated as follows:

Strategy 1: A profit of \$10,000 with probability 0.15 and a loss of \$1,000 with probability 0.85.

Strategy 2: A profit of \$1,000 with probability 0.5, a profit of \$500 with probability 0.30, and a loss of \$500 with probability 0.20.

Strategy 3: A certain profit of \$400.

Which strategy has the highest expected profit? Would you necessarily advise the investor to adopt this strategy?

3. A company receives a very large shipment of parts. A random sample of eighteen of these parts is checked and, if fewer than two are defective, the shipment is accepted. What is the probability of accepting a shipment containing:
a) 5% defective (b) 10% defective? (c) 20% defectives?
(correct the answers to 4 decimal places)
4. Suppose that aeroplane engines operate independently and fail with probability equal to 0.4. Assuming that a plane makes a safe flight if at least one-half of its engines run, determine whether a 4-engine plane or a 2-engine plane has the higher probability for a successful flight.
5. In testing a certain kind of truck tire, it is found that 8% of the trucks fail to complete the test run (blowouts during test run). Should the number of trucks tested with blowouts follows Binomial probability?

Of the next 20 trucks tested, find the probability that:

- a) from 3 to 6 have blowouts;
b) fewer than 4 have blowouts;
c) more than 5 have blowouts.
6. A campus finance officer finds that for all parking tickets issued, fines on 78% are paid. In most recent week, 620 parking tickets have been issued, find the mean and standard deviation of the number of these tickets for which the fine will be paid, correct the answers to 2 decimal places.