

1. In a shipment of 32 bicycles, 12 had flat tires. If you choose a sample of 5 bicycles at random, find the probability that
 - a. exactly 1 in the sample will have a flat tire
 - b. at least 1 will have a flat tire
 - c. at least 2 will have a flat tire

2. In trials of Prozac it was found that 23% of the patients taking the drug experienced nausea. If Dr. Woo prescribes Prozac for 12 of his patients, find the probability that
 - a. exactly 3 will experience nausea
 - b. at least one will experience nausea
 - c. no more than 3 will experience nausea

3. A club plans to send 4 of its 10 members to convention. There are 4 boys and 6 girls in the club. If the members going to the convention are selected at random find the following.
 - a. Find the probability that 2 boys and 2 girls are selected.
 - b. Sally is a member of the club and would like to go to the convention. Find the probability that Sally is selected.

4. A candy bowl contains 5 chocolates, 7 caramels and 4 peppermints. Three candies are chosen at random. Find the probability that the following candies are selected.
 - a. one candy of each type
 - b. at least one chocolate
 - c. two candies alike

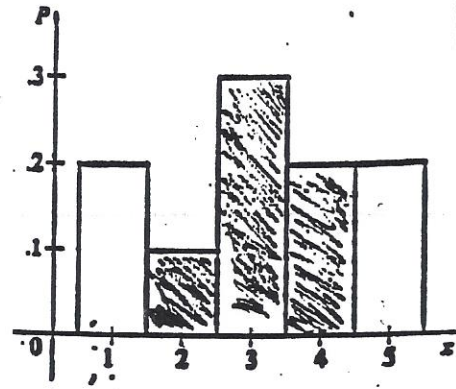
5. A basketball player has a history of making 80% of the foul shots taken during games. What is the probability that he will miss three of the next five foul shots he takes. (Read this one carefully.)

6. A flat of petunias contains 5 white, 6 red and 4 purple flowers.
 - a. If two plants are selected at random, find the probability that the plants will be the same color.
 - b. If three plants are selected at random, find the probability that 2 of the three will be the same color.

7. The probability that you keep your TV set for more than 10 years is .09. If a random sample of 15 sets is surveyed, find the probability that the sample will contain exactly 2 TVs that have lasted more than 10 years.

8. A box of baseball cards contains 3 different Mickey Mantle cards, 2 different Babe Ruth cards, and 4 different Hank Aaron cards. If the cards are selected at random and lined up for display, find the probability that like cards will be lined up together.

9. Using the given histogram find the following.
- the probability that corresponds to the shaded area
 - $P(x \leq 2)$
 - the probability x is more than 4.
 - the probability x is between 2 and 5
 - Find the expected value for the random variable x .



10. A market research analyst for a large restaurant chain finds that customers who order from the adult menu spend an average of \$8 per meal, while those ordering from the child's menu spend an average of \$3 per meal. If 60% of the restaurant's patrons order from the child's menu, find the expected expenditure per meal per customer.
11. 500 raffle tickets are sold at \$2.00 each. One grand prize of \$100 and two consolation prizes of \$50 will be awarded. Find the expectation if one ticket is purchased.
12. The Palm Coast Investment Club is considering purchasing a certain stock. After considerable research, the club members determine that there is a 60% chance of making \$8000, a 10% chance of breaking even, and a 30% chance of losing \$6200. Find the expectation of this purchase.
13. According to the state of California, 33% of all state community college students belong to ethnic minorities. In a group of 545 community college students, how many would you expect to belong to an ethnic minority?
14. A factory tests a random sample of 5 transistors for defects. The probability that a particular transistor is defective is .21.
- Prepare a probability distribution.
 - Construct a histogram and shade $P(x \geq 3)$.
 - Determine the expected value.
15. In a drama club, 2 of 8 members are women. Three members are selected to be interviewed by the campus newspaper, and the number of women is noted.
- Prepare a probability distribution.
 - Construct a histogram and shade the area where x is at least 1.
 - Determine the expected value.

Review problem answers.

1. a. .2887
 b. .9230
 c. .6343

2. a. .255
 b. .957
 c. .710

3. a. .4286
 b. .4

4. a. .25
 b. .705
 c. .6625

5. .0512

6. a. .2952
 b. .6615

7. .2496

8. .00476

9. a. .6
 b. .3
 c. .2
 d. .5
 e. 3.1

10. \$5.00

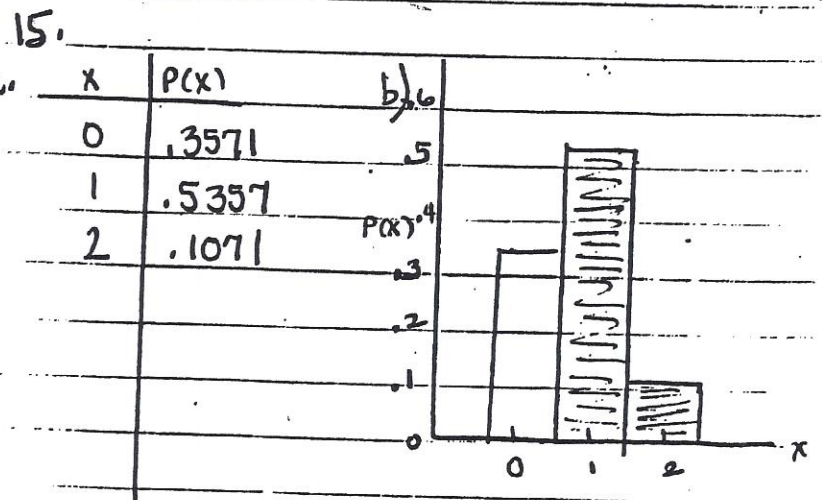
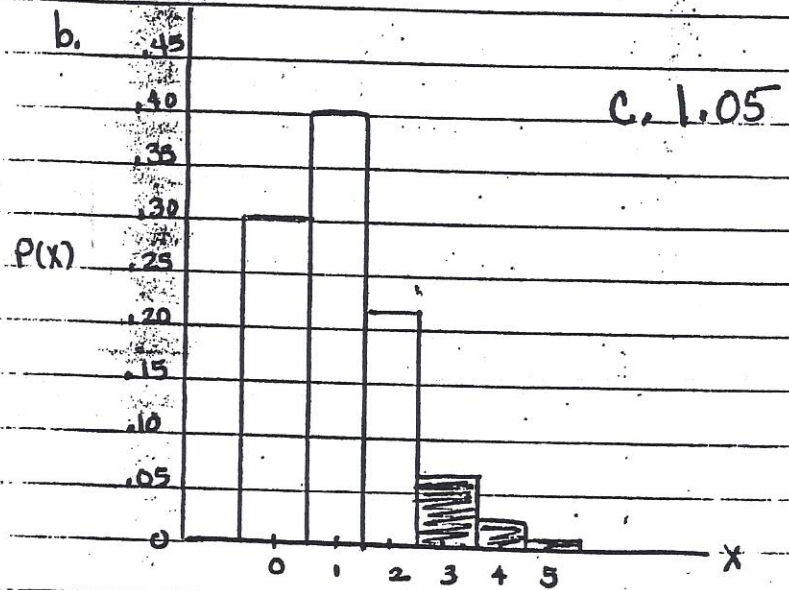
11. -\$1.60

12. \$2940

13. 179.85

14. a.

x	P(x)
0	.3077
1	.4090
2	.2174
3	.0578
4	.0077
5	.0004



c. .75