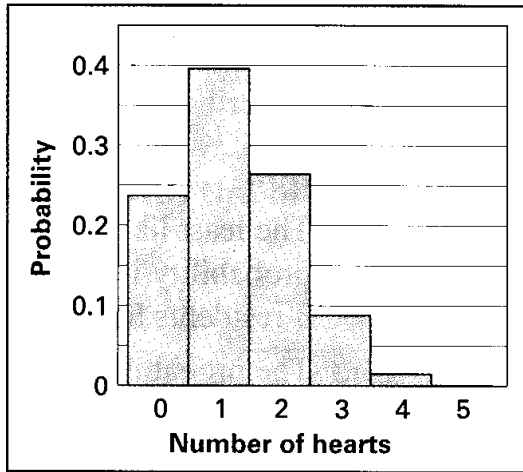


1. A student conducted an experiment using a standard deck of 52 cards. The student chose a card at random, noted if it was a heart then replaced it. The student conducted this experiment 5 times. The resulting histogram is below.



a) What is the probability that the student selected two hearts?

b) What is the probability that the student selected at least three hearts?

In the following problems, determine whether a probability distribution is given. In those cases where a probability distribution is not described, identify the requirement that is not satisfied. In those cases where a probability distribution is described, create a histogram of the probability model.

2. A vendor supplies refreshments at a baseball stadium and must plan for the possibility of a World Series contest. In the accompanying table, x represents the number of baseball games required to complete a World Series contest.

| | | | | |
|--------------------------|-------|-------|-------|-------|
| x | 4 | 5 | 6 | 7 |
| $P(x)$ | 0.120 | 0.253 | 0.217 | 0.410 |

3. The Young Fun Company operates a national toy store chain that depends heavily on the size of the child population, and research is being conducted to learn more about the number of children in families. In the accompanying table, x represents the number of children in families.

| | | | | |
|--------------------------|------|------|------|------|
| x | 0 | 1 | 2 | 3 |
| $P(x)$ | 0.48 | 0.21 | 0.19 | 0.08 |

4. To settle a paternity suit, two different people are given blood tests. If x is the number having group A blood, then x can be 0, 1, or 2 and the corresponding probabilities are 0.36, 0.48, and 0.16, respectively.

5. Car headlight manufacturers are concerned about failure rates. One headlight failure is an inconvenience, but if both lights fail, you can't drive at night. Assume that the probabilities of 0, 1, and 2 failures are 0.96, 0.036, and 0.004, respectively.

6. United Airlines Flight 470 from Denver to St. Louis has an on-time performance described as follows: For 4 independent flights, the probabilities for 0, 1, 2, 3, and 4 on-time flights are 0.026, 0.345, 0.346, 0.154, and 0.129, respectively.

7. The Baltimore Computer House finds that the probabilities of selling 0, 1, 2, 3, and 4 microcomputers in one day are 0.245, 0.370, 0.210, 0.095, and 0.080, respectively.