Time Frame: 50 minutes

Subject Matter: Discrete Probability Distribution

TELL ME

Objective: TSWBAT construct a probability distribution data and draw a graph.

Standards: DA – 5.11

 Materials: Transparencies and Worksheets

SHOW ME

Presentation of Information:

The teacher will discuss how to construct a probability distribution and draw a graph.

Example

 Construct a probability distribution for the data and draw a graph for the distribution.

1. The probabilities of revenue on an investment of $500, $1000, $ 1500, and $2000 are $\frac{1}{5}, \frac{3}{10}, \frac{2}{5},$ and $\frac{1}{10}$, respectively.

Solutions:

|  |  |
| --- | --- |
| Probability Distribution | Graph |
|  X $500 $1000 $1500 $2000\_\_\_  P(X) $\frac{1}{5}$ $\frac{3}{10}$ $\frac{2}{5}$ $\frac{1}{10}$  |  |

1. A die is rolled such that the probabilities of getting 1, 2, 3, 4, 5, and 6 are $\frac{1}{12}, \frac{1}{6}, \frac{1}{2}, \frac{1}{12}, \frac{1}{12}$ and $\frac{1}{12}$, respectively.

Solutions:

|  |  |
| --- | --- |
| Probability Distribution | Graph |
|  X 1 2 3 4\_\_ 5 6\_  P(X) $\frac{1}{12}$ $\frac{1}{6}$ $\frac{1}{2}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ |  |

1. Represent graphically the probability distribution for the sample space for tossing three coins.

Solutions:

Sample Space

HHH THH

HHT THT

HTH TTH

HTT TTT

|  |  |
| --- | --- |
| Probability Distribution | Graph |
|  **For Number of Heads** X 0 1 2 3\_\_  P(X) $\frac{1}{8}$ $\frac{3}{8}$ $\frac{3}{8}$ $\frac{1}{8}$  |  |

Try the following.

Construct a probability distribution for the data and draw a graph for the distribution.

1. The probabilities that a patient will have 0, 1, 2, or 3 medical tests performed on entering a hospital are $\frac{6}{15}, \frac{5}{15}, \frac{3}{15}, $and $\frac{1}{15}$, respectively.
2. The probabilities of a return of $1000, $2000, and $3000 are $\frac{1}{2}, \frac{1}{4},$ and $\frac{1}{4}$, respectively.
3. The probabilities of a machine manufacturing 1, 1, 2, 3, 4, or 5 defective parts in one day are 0.75, 0.17, 0.04, 0.025, 0.01, and 0.005, respectively.
4. The probabilities that a customer will purchase 0, 1, 2, or 3 books are 0.45, 0.30, 0.15, and 0.10, respectively.
5. The probabilities that a customer will select 1, 2, 3, 4, and 5 items at a convenience store are 0.32, 0.12, 0.23, 0.18, and 0.15, respectively.

Homework.

Construct a probability distribution for the data and draw a graph for the distribution.

1. The probabilities that a tutor sees 1, 2, 3, 4, and 5 students in any one day are 0.10, 0.25, 0.25, 0.20, and 0.20, respectively.
2. Three patients are given a headache relief tablet. The probabilities for 0, 1, 2, or 3 successes are 0.18, 0.52, 0.21, and 0.09, respectively.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: Dec. 8, 2010

Construct a probability distribution for the data and draw a graph for the distribution. Write your work and graph at the back of this paper.

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Homework: Copy this homework in your notebook.

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