4.The distribution of scores on a quiz (X) is shown below. State the mean and standard deviation of the quiz scores.

x	1	2	3	4	5	6	7
p(x)	.01	.06	.11	.15	.19	.25	.23
						-	

What is the probability that a randomly selected student scores within one standard deviation of the mean?

5. A die is loaded in such a way that the probabilities of getting a 1, 2, 3, 4, 5, and 6 are 1/2, 1/6, 1/12, 1/12, 1/12, and 1/12, respectively.

a. Identify the random variable of interest. Then construct a probability distribution for the data, and draw a probability distribution histogram.

b. Find P(X > 3.5).

c. Find  $P(2 \le X \le 4.2)$ .

6. A certain continuous probability density curve is made up of two straight line segments. The first segment begins at the point (0, 0.2) and goes to the point (2, 0.4). The second segment goes from (2, 0.4) to the point (3, 0.4).

a. Sketch this function, and verify that it is a legitimate density curve.

b. Find  $P(2 \le X \le 3)$ .

c. Find P(X < 2).

d. Find P(1 < X < 3).

 $\hline 7, Sophie works at the Soccer Shop, and needs to order men's cleats, which come in sizes 6, 7, 8, 9, 10, 11, & 12. She would like to determine how many of each size to order. At first she thought to order the same number of each, but then she looked at sizes receipts from the past 3 months. The following is what she found: <math display="block"> \hline \frac{Shoe size}{1800} = \frac{6}{122} + \frac{7}{138} + \frac{8}{154} + \frac{9}{177} + \frac{113}{133} + \frac{9}{92} + \frac{10}{11} + \frac{11}{133} + \frac{11}{1$ 

Find the probability distribution for the # of cleats sold for each size.

- b. What's the probability that a customer will select a shoe of at least size 11?
- c. Compute the expected shoe size and the standard deviation of the shoe size.
- d. If Sophie plans to order 1000 shoes, how many of size 8 should she order?