1. Determine whether the distribution represents a probability distribution. If it does not, state why. a)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | 3 | 6 | 8 | 12 |
| P(X) | 0.3 | 0.5 | 0.7 | -0.8 |

 b)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 2 | 5 | 6 | 8 | 10 |
| P(X) | 2/11 | 3/11 | 3/11 | 2/11 | 1/11 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | 20 | 30 | 40 | 50 |
| P(X) | 0.05 | 0.35 | 0.4 | 0.3 |

 c)

2. Construct a probability distribution for the data and draw a graph for the distribution. The probabilities that a student volunteer hosts 1, 2, 3, or 4 prospective first-year students are 0.4, 0.3, 0.2, and 0.1 respectively.

3. State whether the variable is discrete or continuous.

 a) the speed of a jet airplane

 b) The number of cheeseburgers a fast-food restaurant serves each day

 c) The number of people who play the state lottery each day

4. Construct a probability distribution for drawing a card from a deck of 40 cards consisting of 10 cards numbered 1, 10 cards numbered 2, 15 cards numbered 3, and 5 cards numbered 4.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X |  |  |  |  |
| P(X) |  |  |  |  |

a) P(X< 4) = c) P(2 < X < 4) = e) P (X = 3) =

b) P(X <2) = d) P(X > 2) =

5. A density curve is pictured below. Use the distribution

to find the following probabilities.

a) P(X < 1) =

b) P(X > 2) =

c) P(X = 3) =

1 2 3 4 5 6

d) P(1 < X < 3) =

6. Each month, an American household generates an average of 28 pound of newspaper for garbage or recycling. Assume the variable is approximately normally distributed and the standard deviation is 2 pounds. If a household is selected at random, find the probability of its generating

 a) More than 30.2 pounds per month

 b) Between 27 and 31 pounds per month

7. For a medical study, a researcher wishes to select people in the middle 60% of the population based on blood pressure. The blood pressure readings are normally distributed. If the mean systolic blood pressure is 120 and the standard deviation is 8, find the upper and lower reading that would qualify people to participate in the study.