Q.1: ***Find the mean of the given probability distribution.***
The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled.

x	$P(x)$
1	0.15
2	0.13
3	0.15
4	0.10
5	0.10
6	0.37

Answer

Q.2: The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.5729, 0.0767, 0.0076, and 0.0003, respectively. Find the variance of the probability distribution.

Answer

Q.3: Suppose you buy 1 ticket for $1 out of a lottery of 1000 tickets where the prize for the one winning ticket is to be $500. What is your expected value?

Answer

Q.4: ***Determine whether the given procedure results in a binomial distribution. If not, state the reason why.***
Choosing 4 marbles from a box of 40 marbles (20 purple, 12 red, and8 green) on e at a time without replacement, keeping track of the number of red marbles chosen.

Answer

Q.5: ***Determine if the outcome is unusual. Consider as unusual any result that differs from the mean by more than 2 standard deviations. "That is, unusual values are either less than*** $\mu - 2\sigma$ ***or greater than*** $\mu + 2\sigma$.

The Acme Candy Company claims that 60% of the jawbreakers it produces weigh more than 0.4 ounces. Suppose that 800 jawbreakers are selected at random from the production lines. Would it be unusual for this sample of 800 to contain 419 jawbreakers that weigh more than 0.4 ounces?

Answer

Q.6: A bank loan officer rates applicants for credit. The ratings are normally distributed with a mean of 200 and a standard deviation of 50. Find P_{60}, the score which separates the lower 60% from the top 40%.

Answer

Q.7: ***Assume that X has a normal distribution, and find the indicated probability.***

The mean is $\mu = 137.0$ and the standard deviation is $\sigma = 5.3$. Find the probability that X is between 134.4 and 140.1.

Answer

Q.8: A history teacher assigns letter grades on a test according to the following scheme.
A: Top 10%,
B: Scores below the top 10% and above the bottom 60%,
C: Scores below the top 40% and above the bottom 20%,
D: Scores below the top 80% and above the bottom 10%,
F: Bottom 10%.
Scores on the test are normally distributed with a mean of 70 and a standard deviation of 12.6. Find the numerical limits for each letter grade.

Answer

Q.9: A car insurance company has determined that 5% of all drives were involved in a car accident last year. Among the 10 drivers living on one particular street, 3 were involved in a car accident last year. If 10 drivers are randomly selected, what is the probability of getting 3 or more who were involved in a car accident last year?

Answer

Q.10: A company purchases shipments of machine components and uses this acceptance sampling plan: Randomly select and test 24 components and accept the whole batch if there are fewer than 3 defectives. If a particular shipment of thousands of components actually has 4% rate of defects, what is the probability that this whole shipment will be accepted?

Answer