**Chapter 4**
Using Probability and Probability Distributions

*This activity contains 14 questions.*

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|  | Question 1.**Which of the following is not one of the common ways to assign probability to events?** |
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|  | Classical probability assessment |
|  | Mutual response assessment |
|  | Relative frequency of occurrence |
|  | Subjective probability assessment |

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|  | Question 2.**Using the table provided, what is the probability the customer is under 20?**

|  |  |  |  |
| --- | --- | --- | --- |
| Age | Male   | Female   |  |
| Under 20 | 21   | 20   | 41 |
| 20 - 39 | 18   | 18   | 36 |
| 40 and over    |   9   | 14   | 23 |
|    | 48 | 52 | 100 |

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|  |  |
| --- | --- |
|  | .2 |
|  | .21 |
|  | .41 |
|  | .59 |

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|  | Question 3.**Using the table provided, what is the probability that a male customer is 40 or over?**

|  |  |  |  |
| --- | --- | --- | --- |
| Age | Male   | Female   |  |
| Under 20 | 21   | 20   | 41 |
| 20 - 39 | 18   | 18   | 36 |
| 40 and over    |   9   | 14   | 23 |
|    | 48 | 52 | 100 |

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|  |  |
| --- | --- |
|  | .09 |
|  | .1875 |
|  | .23 |
|  | .3913 |

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|  | Question 4.**All possible elementary events associated with an experiment form** |
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|  | the absolute event. |
|  | the experiment. |
|  | the probability rule. |
|  | the sample space. |

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|  | Question 5.**Based on relative frequency from the table provided, what is the probability that a randomly selected package will be delivered in either 3 or 4 days?Package Delivery Results, Dec, 1999**

|  |  |  |
| --- | --- | --- |
| Days |     | No. of Packages |
| 0 |  |     3 |
| 1 |  |   17 |
| 2 |  |   98 |
| 3 |  | 167 |
| 4 |  |   23 |
| 5 |  |     4 |
|  |  | 312 |

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|  |  |
| --- | --- |
|  | 0.074 |
|  | 0.123 |
|  | 0.535 |
|  | 0.609 |

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|  | Question 6.**Based on relative frequency from the table provided, what is the probability that a randomly selected package will be delivered in 1 or more days?Package Delivery Results, Dec, 1999**

|  |  |  |
| --- | --- | --- |
| Days |     | No. of Packages |
| 0 |  |     3 |
| 1 |  |   17 |
| 2 |  |   98 |
| 3 |  | 167 |
| 4 |  |   23 |
| 5 |  |     4 |
|  |  | 312 |

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|  |  |
| --- | --- |
|  | 0.010 |
|  | 0.090 |
|  | 0.901 |
|  | 0.990 |

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|  | Question 7.**Use Table 4-4 from the Text to determine the probability of either watching 1 to 2 movies or being over 50.** |
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|  |  |
| --- | --- |
|  | 0.20 |
|  | 0.30 |
|  | 0.40 |
|  | 0.50 |

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|  | Question 8.**In a certain community 40% of the families have dogs, 30% have cats, and 15% have both dogs and cats. Given that a family has a dog, what is the probability that they also have a cat?** |
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|  |  |
| --- | --- |
|  | 0.150 |
|  | 0.250 |
|  | 0.375 |
|  | 0.500 |

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|  | Question 9.**A car rental company has 23 American cars and 17 foreign cars. What is the probability of selecting two different cars at random and both being American?** |
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|  |  |
| --- | --- |
|  | 0.324 |
|  | 0.331 |
|  | 0.564 |
|  | 0.575 |

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|  | Question 10.**A man wants to rent a car from a rental company that has 23 American cars and 17 foreign cars. Then a week later he is going to rent another one. What is the probability that both are American?** |
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|  |  |
| --- | --- |
|  | 0.324 |
|  | 0.331 |
|  | 0.564 |
|  | 0.575 |

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|  | Question 11.**A salesman makes 55% of his presentations to males and 45% to females. He found that he can close 80% of presentations made to males and 65% made to females. If he closes on a sale, what is the probability the presentation was made to a male?** |
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|  |  |
| --- | --- |
|  | 0.550 |
|  | 0.561 |
|  | 0.601 |
|  | 0.650 |

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|  | Question 12.**The following table represents the grade distribution for a statistics exam broken down by gender of the student. What is the probability that a randomly selected student was either male or received a B grade?**

|  |  |  |  |
| --- | --- | --- | --- |
| Grade   | Male   | Female   |  |
| A   |   9 | 12   | 21 |
| B   | 18   |   6 | 24 |
| C    |   7   |   8   | 15 |
|    | 34 | 26 | 60 |

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|  |  |
| --- | --- |
|  | 0.57 |
|  | 0.40 |
|  | 0.43 |
|  | 0.67 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Question 13.**The following table represents the grade distribution for a statistics exam broken down by gender of the student. What is the probability that a randomly selected student received either an A or a B grade?**

|  |  |  |  |
| --- | --- | --- | --- |
| Grade   | Male   | Female   |  |
| A   |   9 | 12   | 21 |
| B   | 18   |   6 | 24 |
| C    |   7   |   8   | 15 |
|    | 34 | 26 | 60 |

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|  |  |
| --- | --- |
|  | 0.35 |
|  | 0.40 |
|  | 0.75 |
|  | 0.25 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Question 14.**The following table represents the grade distribution for a statistics exam broken down by gender of the student. Given that the randomly selected student received an A grade, what is the probability the student was female?**

|  |  |  |  |
| --- | --- | --- | --- |
| Grade   | Male   | Female   |  |
| A   |   9 | 12   | 21 |
| B   | 18   |   6 | 24 |
| C    |   7   |   8   | 15 |
|    | 34 | 26 | 60 |

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|  |  |
| --- | --- |
|  | 0.20 |
|  | 0.57 |
|  | 0.35 |
|  | 0.15 |

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