Test 1 Review Questions:

1. A study of 1000 randomly selected flights of a major airline showed that 792 of the flights arrived on time. What is the probability of a flight arriving on time?
2. The distribution of Master’s degrees conferred by a university is listed in the table.

|  |  |
| --- | --- |
| Major | Frequency |
| Math | 216 |
| English | 207 |
| Engineering | 92 |
| Business | 176 |
| Education | 222 |

What is the probability that a randomly selected student graduating with a Master’s degree has a major in Engineering? Round your answer to three decimal places.

1. Use the pie chart at the right, which shows the number of workers (in thousands) by industry for a certain country. Find the probability that a worker chosen at random was not employed in the agriculture, forestry, fishing, and hunting industry. See pie chart in Onenote.
2. Fifteen of the 50 digital video recorders (DVRs) in an inventory are known to be defective. What is the probability you randomly select an item that is not defective?
3. The access code for a car’s security system consists of four digits. The first digit cannot be 3 and the last digit must be odd. How many different codes are available?
4. Which of the following cannot be a probability?

0, -44, , 0.001

1. From the information provided, create the sample space of possible outcomes. Flip a coin twice.
2. Classify the events as dependent or independent. The events of getting two aces when two cards are drawn from a deck of playing cards and the first card is replaced before the second card is drawn.
3. A group of students were asked if they carry a credit card. The responses are listed in the table.

|  |  |  |  |
| --- | --- | --- | --- |
| Class | Credit Card Carrier | Not a Credit Card Carrier | Total |
| Freshman | 24 | 36 | 60 |
| Sophomore | 9 | 31 | 40 |
| Total | 33 | 67 | 100 |

If a student is selected at random, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places.

1. You are dealt two cards successively without replacement from a standard deck of 52 playing cards. Find the probability that the first card is a two and the second card is a ten. Round your answer to three decimal places.
2. A manufacturing process has a 70% yield, meaning that 70% of the products are acceptable and 30% are defective. If three of the products are randomly selected, find the probability that all of them are acceptable.
3. You are dealt two cards successively (without replacement) from a shuffled deck of 52 playing cards. Find the probability that both cards are black. Express your answer as a simplified fraction.
4. Decide if the events A and B are mutually exclusive. A person is selected at random.

A: Their birthday is in the fall.

B: Their birthday is in October

1. A card is drawn from a standard deck of 52 playing cards. Find the probability that the card is an ace or a king.
2. A card is drawn from a standard deck of 52 playing cards. Find the probability that the card is an ace or a black card.
3. The table lists the smoking habits of a group of college students.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sex | Non-Smoker | Regular Smoker | Heavy Smoker | Total |
| Man | 135 | 69 | 5 | 209 |
| Woman | 187 | 21 | 12 | 220 |
| Total | 322 | 90 | 17 | 429 |

If a student is chosen at random find the probability of getting someone who is a man or a non-smoker. Round your answer to three decimal places.

1. Perform the indicated calculation, 6P4.
2. Perform the indicated calculation, 9C4.
3. A tourist in Ireland wants to visit six different cities. How many different routes are possible?
4. The Environmental Protection Agency must visit nine factories for complaints of air pollution. In how many different ways can a representative visit five of these to investigate this week?
5. A tourist in Ireland wants to visit six different cities. If the route is randomly selected, what is the probability that the tourist will visit the cities in alphabetical order? Round your answer to five decimal places.
6. The random variable x represents the number of cars per household in a town of 1000 households. Find the probability of randomly selecting a household that has between one and three cars inclusive.

|  |  |
| --- | --- |
| Cars | Households |
| 0 | 125 |
| 1 | 428 |
| 2 | 256 |
| 3 | 108 |
| 4 | 83 |