**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

**Find the indicated probability.**

1) On a multiple choice test, each question has 7 possible answers. If you make a random guess on the first question, what is the probability that you are correct? 1) _____

2) A bag contains 2 red marbles, 3 blue marbles, and 5 green marbles. If a marble is randomly selected from the bag, what is the probability that it is blue? 2) _____

3) If a person is randomly selected, find the probability that his or her birthday is in May. Ignore leap years. 3) _____

4) A class consists of 49 women and 92 men. If a student is randomly selected, what is the probability that the student is a woman? 4) _____

5) In a poll, respondents were asked whether they had ever been in a car accident. 127 respondents indicated that they had been in a car accident and 299 respondents said that they had not been in a car accident. If one of these respondents is randomly selected, what is the probability of getting someone who has been in a car accident? Round to the nearest thousandth, if necessary. 5) _____

**Answer the question.**

6) Find the odds against correctly guessing the answer to a multiple choice question with 6 possible answers. 6) _____

7) In a certain town, 25% of people commute to work by bicycle. If a person is selected randomly from the town, what are the odds against selecting someone who commutes by bicycle? 7) _____

8) Suppose you are playing a game of chance. If you bet \$7 on a certain event, you will collect \$259 (including your \$7 bet) if you win. Find the odds used for determining the payoff. 8) _____

**Find the indicated probability.**

9) If $P(A) = \frac{20}{21}$, find $P(\overline{A})$. 9) _____

10) Find $P(\overline{A})$, given that $P(A) = 0.839$. 10) _____

11) Based on meteorological records, the probability that it will snow in a certain town on January 1st is 0.455. Find the probability that in a given year it will not snow on January 1st in that town. 11) _____

12) The probability that Luis will pass his statistics test is 0.74. Find the probability that he will fail his statistics test. 12) _____

13) If a person is randomly selected, find the probability that his or her birthday is not in May. Ignore leap years. 13) _____

14) If you pick a card at random from a well shuffled deck, what is the probability that you get a face card or a spade? 14) _____

15) The table below describes the smoking habits of a group of asthma sufferers. 15) _____

| | Nonsmoker | Occasional smoker | Regular smoker | Heavy smoker | Total |
|---|---|---|---|---|---|
| Men | 340 | 34 | 74 | 37 | 485 |
| Women | 398 | 39 | 74 | 50 | 561 |
| Total | 738 | 73 | 148 | 87 | 1046 |

If one of the 1046 people is randomly selected, find the probability that the person is a man or a heavy smoker.

16) A sample of 100 wood and 100 graphite tennis rackets are taken from the warehouse. If 13 wood and 20 graphite are defective and one racket is randomly selected from the sample, find the probability that the racket is wood or defective. 16) _____

17) Of the 68 people who answered "yes" to a question, 12 were male. Of the 87 people that answered "no" to the question, 8 were male. If one person is selected at random from the group, what is the probability that the person answered "yes" or was male? 17) _____

18) A study of consumer smoking habits includes 163 people in the 18–22 age bracket (44 of whom smoke), 140 people in the 23–30 age bracket (37 of whom smoke), and 81 people in the 31–40 age bracket (25 of whom smoke). If one person is randomly selected from this sample, find the probability of getting someone who is age 23–30 or smokes. 18) _____

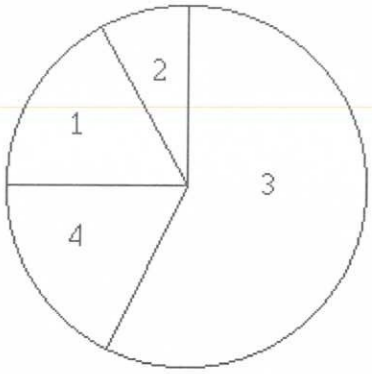
19) A study of consumer smoking habits includes 177 people in the 18–22 age bracket (43 of whom smoke), 134 people in the 23–30 age bracket (30 of whom smoke), and 86 people in the 31–40 age bracket (29 of whom smoke). If one person is randomly selected from this sample, find the probability of getting someone who is age 18–22 or does not smoke. 19) _____

20) The manager of a bank recorded the amount of time each customer spent waiting in line during peak business hours one Monday. The frequency table below summarizes the results. 20) _____

| Waiting Time (minutes) | Number of Customers |
|---|---|
| 0–3 | 15 |
| 4–7 | 13 |
| 8–11 | 12 |
| 12–15 | 4 |
| 16–19 | 8 |
| 20–23 | 2 |
| 24–27 | 1 |

If we randomly select one of the customers represented in the table, what is the probability that the waiting time is at least 12 minutes or between 8 and 15 minutes?

21) 100 employees of a company are asked how they get to work and whether they work full time or part time. The figure below shows the results. If one of the 100 employees is randomly selected, find the probability of getting someone who carpools or someone who works full time. 21) _____




1. Public transportation: 9 full time, 7 part time
2. Bicycle: 3 full time, 4 part time
3. Drive alone: 31 full time, 28 part time
4. Carpool: 9 full time, 9 part time

22) A 6-sided die is rolled. Find P(3 or 5). 22) _____

23) A card is drawn from a well-shuffled deck of 52 cards. Find P(drawing an ace or a 9). 23) _____

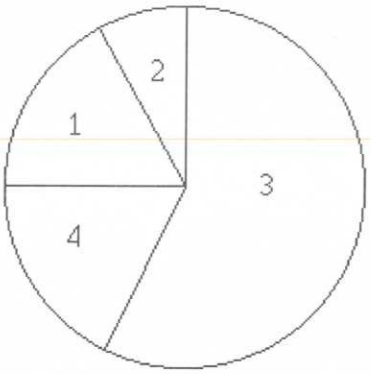
24) A card is drawn from a well-shuffled deck of 52 cards. Find P(drawing a face card or a 4). 24) _____

25) The table below describes the smoking habits of a group of asthma sufferers. 25) _____

| | Nonsmoker | Occasional smoker | Regular smoker | Heavy smoker | Total |
|---|---|---|---|---|---|
| Men | 328 | 36 | 80 | 31 | 475 |
| Women | 340 | 37 | 60 | 45 | 482 |
| Total | 668 | 73 | 140 | 76 | 957 |

If one of the 957 people is randomly selected, find the probability of getting a regular or heavy smoker.

26) 100 employees of a company are asked how they get to work and whether they work full time or part time. The figure below shows the results. If one of the 100 employees is randomly selected, find the probability that the person drives alone or cycles to work. 26) _____




1. Public transportation: 9 full time, 6 part time
2. Bicycle: 3 full time, 3 part time
3. Drive alone: 33 full time, 31 part time
4. Carpool: 6 full time, 9 part time

27) A bag contains 7 red marbles, 4 blue marbles, and 1 green marble. Find P(not blue). 27) _____

28) The probability that an event will occur is 0.3. What is the probability that the event will not occur? 28) _____

29) The table below shows the soft drinks preferences of people in three age groups. 29) _____

| | cola | root beer | lemon-lime |
|---|---|---|---|
| under 21 years of age | 40 | 25 | 20 |
| between 21 and 40 | 35 | 20 | 30 |
| over 40 years of age | 20 | 30 | 35 |

If one of the 255 subjects is randomly selected, find the probability that the person is over 40 years of age given that they drink root beer.

30) The following table contains data from a study of two airlines which fly to Small Town, USA. 30) _____

| | Number of flights which were on time | Number of flights which were late |
|---|---|---|
| Podunk Airlines | 33 | 6 |
| Upstate Airlines | 43 | 5 |

If one of the 87 flights is randomly selected, find the probability that the flight selected arrived on time.

31) The following table contains data from a study of two airlines which fly to Small Town, USA. 31) _____

| | Number of flights which were on time | Number of flights which were late |
|---|---|---|
| Podunk Airlines | 33 | 6 |
| Upstate Airlines | 43 | 5 |

If one of the 87 flights is randomly selected, find the probability that the flight selected arrived on time given that it was an Upstate Airlines flight.

32) The following table contains data from a study of two airlines which fly to Small Town, USA. 32) _____

| | Number of flights which were on time | Number of flights which were late |
|---|---|---|
| Podunk Airlines | 33 | 6 |
| Upstate Airlines | 43 | 5 |

If one of the 87 flights is randomly selected, find the probability that the flight selected is an Upstate Airlines flight given that it was late.

33) The following table contains data from a study of two airlines which fly to Small Town, USA. 33) _____

| | Number of flights which were on time | Number of flights which were late |
|---|---|---|
| Podunk Airlines | 33 | 6 |
| Upstate Airlines | 43 | 5 |

If one of the 87 flights is randomly selected, find the probability that the flight selected is an Upstate Airlines flight which was on time.

34) The table below describes the smoking habits of a group of asthma sufferers. 34) _____

| | Nonsmoker | Light smoker | Heavy smoker | Total |
|---|---|---|---|---|
| Men | 362 | 89 | 60 | 511 |
| Women | 392 | 61 | 72 | 525 |
| Total | 754 | 150 | 132 | 1036 |

If one of the 1036 subjects is randomly selected, find the probability that the person chosen is a nonsmoker given that it is a woman. Round to the nearest thousandth.

35) The table below describes the smoking habits of a group of asthma sufferers. 35) _____

| | Nonsmoker | Light smoker | Heavy smoker | Total |
|---|---|---|---|---|
| Men | 380 | 83 | 87 | 550 |
| Women | 322 | 73 | 67 | 462 |
| Total | 702 | 156 | 154 | 1012 |

If one of the 1012 subjects is randomly selected, find the probability that the person chosen is a woman given that the person is a light smoker.

Answer Key
Testname: TYK-PROB 1.TST

1) $\frac{1}{7}$
2) $\frac{3}{10}$
3) $\frac{31}{365}$
4) $\frac{49}{141}$
5) 0.298
6) 5 : 1
7) 3 : 1
8) 36 : 1
9) $\frac{1}{21}$
10) 0.161
11) 0.545
12) 0.26
13) $\frac{334}{365}$
14) $\frac{11}{26}$
15) 0.511
16) 0.6
17) 0.49
18) 0.544
19) 0.851
20) 0.491
21) 0.61
22) $\frac{1}{3}$
23) $\frac{2}{13}$
24) $\frac{4}{13}$
25) 0.226
26) 0.70
27) $\frac{2}{3}$
28) 0.7
29) $\frac{2}{5}$
30) $\frac{76}{87}$
31) $\frac{43}{48}$

32) $\frac{5}{11}$

33) $\frac{43}{87}$

34) 0.747

35) 0.468