Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd:\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_

**Accelerated Geometry B / Algebra II**

Final Exam Review - Unit III

**1.** A card is drawn at random from a standard 52 card deck. Tell whether each question is mutually exclusive or not. Then find each probability.

 **a.** P(heart or 8) Mutually Exclusive? Yes / No

 **b.** P(black card or card greater than 4) Mutually Exclusive? Yes / No

 **c.** P(red card or ace of spades) Mutually Exclusive? Yes / No

**2.** Events D, E, F and G are independent. Given,

P(D) = 0.2 P(E) = 0.1 P(F) = 0.4 P(G) = 0.25

 Use the given probabilities above to answer each question:

 **a.** P(D and E) = **b.** P(D and G) =

 **c.** P(E and F) = **d.** P(D and E and F) =

 **e.** P(D or E) = **e.** P(D or G) =

 *(You will need your answer to* ***a****) (You will need your answer to* ***b****)*

**3.** A spinner is divided into 8 parts numbered 1 through 8. Each part is the same size. The spinner is spun once. Find the probability of each event.

 **a.** The number is even or divisible by 3

 **b.** The number is odd or greater than 7

 **c.** The number is less than 2 or greater than 6

 **d.** The number is odd or divisible by 4

**4**. Five red, six blue, and three green marbles are placed in a jar. You are picking 3 marbles out of the jar without

 replacement. Determine the probability of…

* 1. Picking a red marble, then a blue, then another blue.
	2. Picking three blue marbles in a row
	3. Picking *atleast* one blue marble

**5.** A bag contains 3 white marbles, 2 red marbles, and 7 blue marbles. A marble is picked at random and is replaced. Then a second marble is picked at random. Find each probability.

 **a.** Both marbles are blue

 **b.** The first marble is white and the second marble is red

 **c.** The first marble is white and the second marble is **not** white

 **d.** Neither marble is red

 **e.** The first marble is blue and the second marble is red

**6.** A box contains 3 glazed doughnuts, 4 jelly doughnuts, and 5 chocolate doughnuts. If a person selects a doughnut at random, find the probability that it is either a glazed doughnut or a chocolate doughnut.

1. James is playing a game. In this game, he has to roll a standard six-sided die and then flip a coin. The different outcomes decide what James has to do during the game. He wants to know the probability of the following outcomes:

 a) rolling a 6 and flipping a tail b) rolling a number less than 6 and a head

 c) rolling a number greater than 4 and tail d) rolling a number greater than 2 and a head

1. Two regular six-sided dice are rolled.

![MCj02404190000[1]]()

What is the probability that the sum is at most four?

**9.** Suppose you draw three cards out of a deck one at a time.

1. If you draw them without replacement, what is the probability of drawing a king, then a 7 and then a queen?
2. Does part a. describe independent events or dependent events? Explain.
3. If you draw them without replacement, what is the probability of drawing a king, another king and then a face card?
4. If you draw them with replacement, what would the answer be for part c.?
5. The table gives information regarding college attendance for different age groups and genders. Fill in the

missing row and column totals and then answer the questions that follow.

|  |  |  |  |
| --- | --- | --- | --- |
| Age Group | Female | Male | Total |
| 15 to 17 | 89 | 61 |  |
| 18 to 24 | 5668 | 4697 |  |
| 25 to 34 | 1904 | 1589 |  |
| 35 or older | 1660 | 970 |  |
| Total |  |  |  |
| \* measured in thousands of persons |

a) What percent college students are aged 18-24?

b) What percent of college students are male?

c) What percent of 18-24 year olds are women?

d) What percent of women are aged 18-24?

1. The two-way table shows the gender of each 40 randomly selected US high school students and whether the

student has allergies.

|  |  |  |
| --- | --- | --- |
|  | Female | Male |
| Allergies | 10 | 8 |
| No Allergies | 13 | 9 |

Randomly select a student from this sample and consider the events: A: The student has allergies and F: the student is female.

 (a) Find *P* (A) (b) Find *P* (F)

 (c) Find *P* (A and F) (d) Find *P* (A or F)

 (e) Find *P* (A|F) (f) Find *P* (F|A)

**12.** You are at the grocery store. From past experience there is a 50% chance that you buy apples. The probability that you buy apples and bananas is 35%. What is the probability that you buy bananas given you are going to buy apples?

1. Josiah did not have enough fertilizer to give to all 100 of the tulip bulbs last fall, so he planted some with fertilizer and some without. 80 of the plants bloomed. Jay checked the blooming plants and 48 of them had received fertilizer. Jay checked the non-blooming plants and 8 had not received fertilizer.

a. What is the probability that a plant will bloom, given it was fertilized?

* 1. What is the probability a plant will bloom given it was not fertilized?
	2. Are the events “blooming” and “received fertilizer” independent? Explain why?
1. A survey of 75 college students was taken to determine where they got the news about what’s going on in the world. Of those surveyed, 29 students got the news from newspapers, 43 from television, and 7 from both newspapers and television. If a student is randomly selected from those who were surveyed, what is the probability that the student:
2. got the news from the television or the newspapers?\_\_\_\_\_\_\_
3. got the news from newspapers, given that the student also got the news from television?\_\_\_\_\_
4. got the news from television, given that the student also got the news from newspapers?\_\_\_\_