

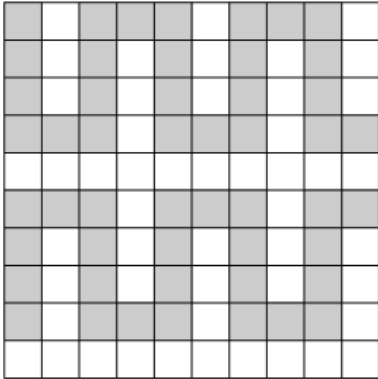
Unit 12 Review**Name:** _____

1. A sandwich menu offers customers a choice of white, rye, or cheese bread with one spread chosen from butter, mustard, or mayonnaise. Draw a tree diagram to represent the sample space for the sandwich options. How many different combinations of bread and spread are there?
2. On a bookshelf there are 10 different algebra books, 6 different geometry books, and 4 different calculus books. In how many ways can you choose 3 books, 1 of each kind?
3. In how many different ways can a 10-question true-false test be answered?
4. A student council has 6 seniors, 5 juniors, 2 sophomores and 1 freshman as members. In how many ways can a 4-member student council committee be formed that includes one member of each class?
5. How many license plates of 5 symbols can be made using a letter for the first symbol and digits for the remaining 4 symbols?
6. How many 3-letter identification codes are possible if no letter is repeated?
7. How many 5-digit codes are possible if 0 cannot be used and no digit can be repeated?
8. How many 4-letter words can be formed from the letters in the word FRACTION if letters can be repeated? Letters do not need to form meaningful words.
9. How many ways can the letters of "I LOVE MATH" be arranged if the second letter must be "I"?
10. The high school choir has been practicing 12 songs, but there is time for only 5 of them at the spring concert. How many different ways can the choir director arrange the 5 songs?

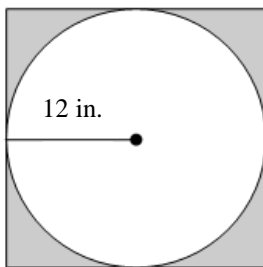
Geometry B

11. Farmington High is planning its academic festival. All math classes will send 2 representatives to compete in the math bowl. How many different pairs of students can be chosen from a class of 26 students?

12. Find the probability that a randomly chosen point lies inside the shaded region.



13. Find the probability that a randomly chosen point lies inside the shaded region.



14. A standard 6-sided black die and a standard 6-sided yellow die are tossed. Find the following probabilities.

a) The black die shows an 8 and the yellow die shows any number

b) The black die shows a 3 and the yellow die shows an odd number

15. A contestant on a game show reaches into a container without looking and picks two paper bills. There are 2 \$100 bills, 4 \$50 bills, 10 \$20 bills, and 20 \$10 bills. What is the probability that the contestant draws 2 \$100 bills one after the other without replacement?

Geometry B

For Questions 16-18, first determine whether the events are independent or dependent. Then, answer the question.

16. A jar contains 7 lemon jawbreakers, 3 cherry jawbreakers, and 8 rainbow jawbreakers. What is the probability of selecting 2 lemon jawbreakers in succession providing the jawbreaker drawn first is then replaced before the second is drawn?
17. A box contains 5 triangles, 6 circles, and 4 squares. If a figure is removed, replaced, and a second figure is picked, what is the probability that a triangle and then a circle will be picked?
18. A basket contains 4 plums, 6 peaches, and 5 oranges. Suppose 3 pieces of fruit are selected at random, one after the other without replacement. Find the probability of picking 2 oranges, then a peach.
19. Determine whether the following events are mutually exclusive. (Answer *yes* or *no*.)
 - a) **A:** rolling a 3 on a die, **B:** rolling a 4
 - b) **A:** drawing a king from a deck of cards, **B:** drawing a queen
 - c) **A:** drawing a jack from a deck of cards, **B:** drawing a heart
 - d) **A:** rolling an odd number on a die, **B:** rolling a 5
 - e) **A:** selecting a girl in class, **B:** selecting a boy in class
20. A card is drawn from a standard deck of playing cards. Find the following probabilities.
 - a) P(ace or king)
 - b) P(ace or heart)
 - c) P(spade or club)
 - d) P(eight or diamond)
21. One bag of candy contains 15 red candies, 10 yellow candies, and 6 green candies. If one candy is randomly selected, find P(red or green).
22. A standard 6-sided die is rolled. Find each probability.
 - a) P(greater than 4)
 - b) P(even or prime)
 - c) P(not prime)

Geometry B

23. Michelle asks a random sample of 212 upperclassmen at his high school whether or not they plan to attend the prom. He finds that 84 seniors and 67 juniors plan to attend the prom, while 26 seniors and 35 juniors do not plan to attend. Organize these responses into a two-way frequency table. Then, use the table to answer some questions below.

- a. How many juniors were surveyed?
- b. How many of the students that were surveyed do not plan to attend the prom?

| | Attending | Not Attending | Total |
|----------------|------------------|----------------------|--------------|
| Seniors | | | |
| Juniors | | | |
| Total | | | |

24. If you draw a Skittle candy at random from a bag of the candies, the candy you draw will have one of 5 colors. The table below gives the probability of each color for a randomly chosen Skittle candy.

| Color | Red | Orange | Yellow | Green | Purple |
|--------------------|------|--------|--------|-------|--------|
| Probability | 0.32 | | 0.14 | 0.27 | 0.13 |

- a. What is the probability of drawing an orange Skittle?
- b. What is the probability of drawing a Skittle that is not red?
- c. What is the probability of drawing a Skittle that is red, yellow, or purple?
- d. What is the probability that of drawing a Skittle that is not yellow or red?