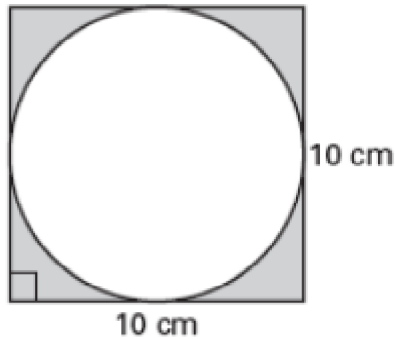## Geometry Unit 13 - Probability Test

Short Answer

1. Given the circle inscribed in the square with side length 12. What is the probability that the point lies inside the circle, if a point is chosen at random inside the square?

    10 cm

    10 cm

2. Find the probability that a point chosen at random in the figure shown lies in the shaded regions. Round your answer to the nearest hundredth.

    6 cm

    3 cm

    8 cm
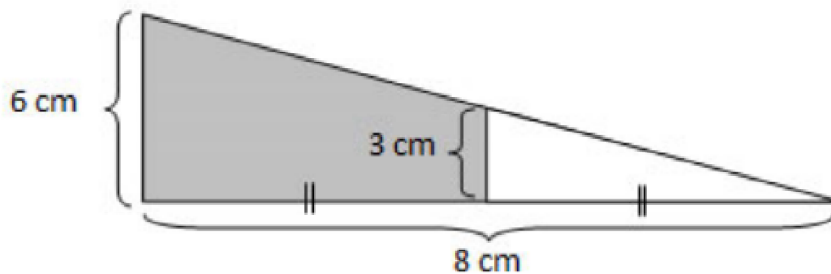
3. A grab bag contains 13 football cards and 9 basketball cards. An experiment consists of taking one card out of the bag, then selecting another card. What is the probability of selecting a football card, replacing it, and then selecting a basketball card?

4. A bag contains hair ribbons for a spirit rally. The bag contains 9 black ribbons and 12 green ribbons. Lila selects a ribbon at random, then Jessica selects a ribbon at random from the remaining ribbons. Find the probability that both events A and Boccur.

    Event A: Lila selects a green ribbon.
    Even B: Jessica selects a black ribbon.

5. The table shows the distribution of male and female students and left- and right-handed students in the math club. Find the probability that a male student selected at random is left-handed. Write your answer as a fraction in simplest form?

	Left-handed	Right-handed
Male	2	35
Female	6	36

6. The table shows the distribution of the labor force in a city in the year 2005. Suppose that a worker is selected at random. Find the probability of randomly selecting a worker in the Services field given that the worker is male. Write your answer as a decimal rounded to the nearest thousandth.

	Agriculture	Industry	Services
Male	3,132	25,056	50,112
Female	667	8,004	57,362

7.

   Events A and B are independent. Find the missing probability.

 $P(A) = $ _____

   $P(B) = 0.9$

   $P(A \text{ and } B) = 0.09$

8. If $P(A) = 0.15$ and $P(B|A) = 0.63$, find $P(A \text{ and } B)$.

9. The sections on a spinner are numbered from 1 through 12. If the probability of landing on a given section is the same for all the sections, what is the probability of spinning a number less than 5 or greater than 9 in a single spin?

10. **Each section of the spinner shown below has the same area. The spinner was spun 52 times. The results are shown in the table.**
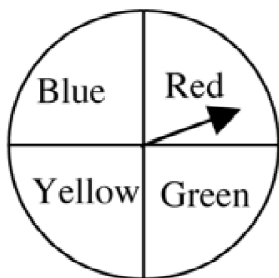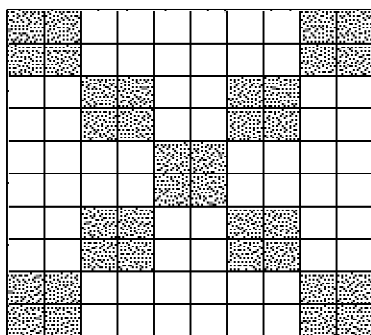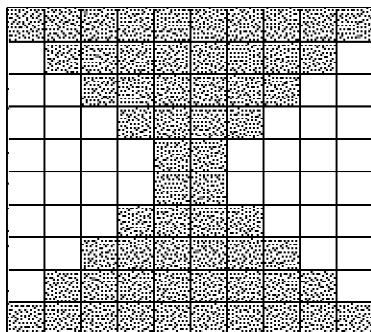

Spinner Results	
Red	13
Green	15
Blue	8
Yellow	16

For which color is the experimental probability of stopping on the color the same as the theoretical probability?

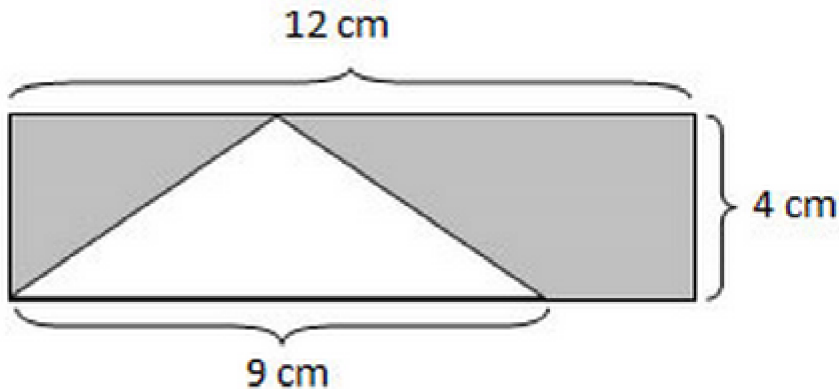11. Find the probability that a point chosen at random lies in the shaded region.

12. Find the probability that a point chosen at random lies in the shaded region.

Seniors at a high school were asked what color car they drive. The results were put in a circle graph. The measure of each central angle is shown. If a senior is chosen at random from this school, find the probability of each response.

What Color Is Your Car?
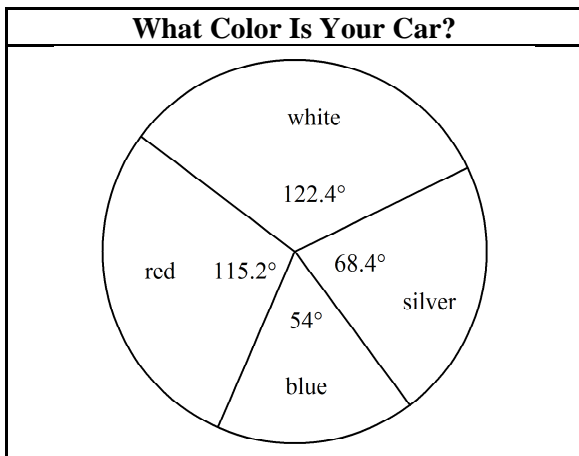
13. Car color is blue.

14. Car color is white.

15. After the introduction of a new soft drink, a taste test is conducted to see how it is being received. Of those who participated, 48 said they preferred the new soft drink, 116 preferred the old soft drink, and 36 could not tell any difference. What is the probability that a person in this survey, chosen at random, preferred the new soft drink?

16. A picnic cooler contains 5 sandwiches made with rye bread, 4 sandwiches made with whole wheat bread, 6 made with oat bread, and 3 made with onion rolls. If only the sandwiches on rye bread and onion rolls have mustard on them, what is the probability that a sandwich selected randomly from the cooler has mustard on it?

17. Find the probability that a point chosen at random will be in the shaded portion of the figure.

18. Find the probability that a point chosen at random will be in the shaded portion of the figure.
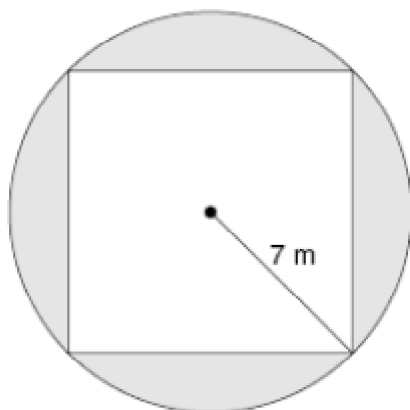
19. *Find the number of possible outcomes.*
    Joe is ordering a birthday cake. Assume one of each is chosen.

Cake Options	Number of Choices
Cake Flavor	2
Icing Flavor	9
Icing Color	14
Size	9
Shape	6

20. *Find the number of possible outcomes.*
    Bob is ordering a new pick-up truck from a dealership. Assume one of each is chosen.

Car Options	Number of Choices
Paint Color	15
Engine Size	2
Interior Color	8
Sound System	5
Tire Size	4

21. *Determine whether the events are **mutually exclusive** or **not mutually exclusive**. Then find the probability.*

Art Class	Teen	Adult	Senior
Pottery	4	15	2
Painting	3	9	9
Drawing	0	12	6

The table shows the enrollment for April's classes at a community art center. One of the participants was chosen at random to receive a free class. What is the probability that the winner was a teen or in the pottery class?

22. A number cube is rolled 390 times. Five is rolled 68 times.
    a. What is the theoretical probability of rolling a five?
    b. What is the experimental probability of rolling a five?

*Determine whether the events are **mutually exclusive** or **not mutually exclusive**. Then find the probability.*

23. Drawing a jack or a diamond from a standard deck of cards.

24. Drawing an ace or a 3 from a standard deck of cards.

25. *Determine whether the events are **dependent** or **independent**. Then find the probability.*
    A prime number is rolled on a die and then heads is flipped on a coin.

26. *Determine whether the events are **dependent** or **independent**. Then find the probability.*
    You roll a die and get either a 5 or 2 both times.

27. *Find the conditional probability.*
    A spinner numbered 1 through 20 is spun. Find the probability that the number spun is a 7 given that the number spun was a prime number.