

Name:

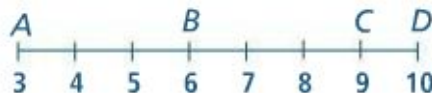
Class Period:

SM3

WS 8.C - Geometric Probability

Problems 1-3: Use the diagram or the situation to find the probability.

1. Use the diagram below. Point H on $\overline{AD}$ is selected at random. What is the probability that H lies on the given segment?



a. $\overline{AB}$

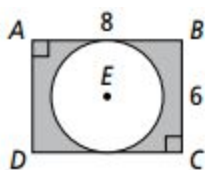
b. $\overline{BD}$

c. $\overline{BC}$

2. A bus arrives at a stop every 16 minutes and waits 3 minutes before leaving. What is the probability that a person arriving at the bus stop at a random time has to wait no more than 10 minutes before a bus to leave? (Hint: Represent the situation visually.)
3. Meteorites are constantly hitting Earth, though most are dust-particle size. The surface area of Earth is about $65.7 \text{ million mi}^2$. The surface area of the United States is about 3.7 million mi^2 . What is the probability that a meteorite that lands on Earth will land on the US?

Problems 4-9: A point in the figure is chosen at random. Find the probability that the point lies in the shaded region.

4.

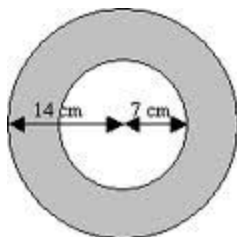


5.

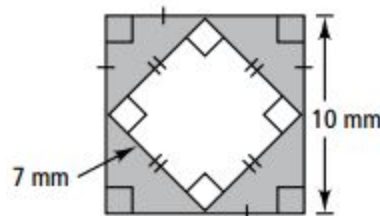


6. If you are throwing darts at game board 4 and 5, which game do you have a better chance of winning at? Do you think if you are competing with game 4 against game 5, is it a fair game? ASSUME THAT WITHIN 10% IT IS A FAIR GAME.

7.



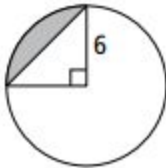
8.



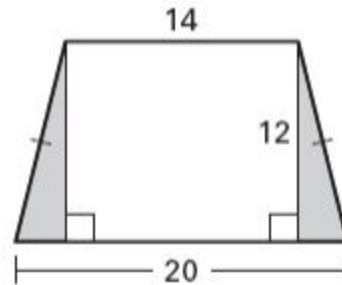
9. If you are throwing darts at game board 7 and 8, which game do you have a better chance of winning at?

Do you think if you are competing with game 7 against game 8, is it a fair game?

10.



11.



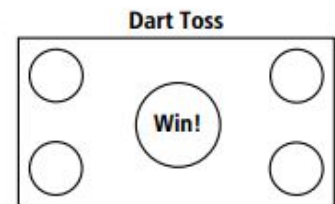
12. If you are throwing darts at game board 10 and 11, which game do you have a better chance of winning at?

Do you think if you are competing with game 10 against game 11, is it a fair game?

Problems 13–14: Use the figures to answer the questions about different game boards.

13.

In the fundraiser game at the right, players toss darts at a board to try to get them into one of the holes. The diameter of the center hole is 8 in. The diameter of each of the four corner holes is 5 in. The board is a 20-in.-by-30-in. rectangle. Find the probability that a tossed dart will go through the indicated hole.



a. center hole

b. top right or left corner

c. any corner

d. lower left corner

14. Find the probability for each outcome on the game spinner shown to the right.

a. Receive a Free Turn

b. Lose a Turn OR Lose 5 points

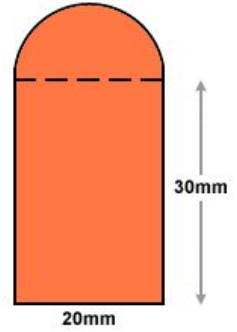
c. Move 2 OR Receive 10 points

Review! Follow the directions for each problem.

15. Use the figure to the right to answer the following questions.

a. What is the area of the shape?

b. Another figure is exactly the same shape, but scaled down by $\frac{1}{5}$.
What is the area of this figure?



16. A farmer has a fenced-off, rectangular pasture for his cattle. The pasture has a width of 30 yards and a length of 45 yards. The farmer gets more fencing and wants to expand the existing pasture to a similar shape. If the new width is 105 yards, what will the new perimeter be?

17. Suzy wants a fish tank to hold 6 fish. If the population density of the fish tank needs to be 0.5 fish per cubic foot, how big should the fish tank be?

18. Convert 45 mph to kilometers per second.

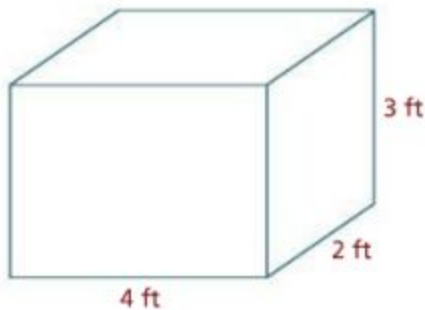
miles				km
hour				sec

19. Solve for x. Round your answer to three decimal places.

$$3(5)^{4x} = 210$$

20. Find the density of the fish tank. Remember Density = mass/Volume.

1. A fish tank is shown below. There are 45 fish in the tank. Find the population density of the fish tank.



21.

The density of sand is $2.082 \frac{\text{g}}{\text{cm}^3}$. A mold used to form hexagonal bricks is 5000 cm^3 .

a. Find the mass in grams.

b. What is the mass in kilograms?

22.

9. Joann has a box with filled with small wooden beads. The beads have a density of approximately $1500 \frac{\text{kg}}{\text{m}^3}$. What is the mass, in kg, of Joann's box if its volume is $115,000 \text{ cm}^3$?