Lesson 10.8 Warm Up (Clickers)

1. What is the area of the trapezoid with base lengths of 8 in and 15 in and a height of 3 in?

2. What is the area of a regular decagon that has side lengths of 9 ft and an apothem of 13.8 ft?

3. What is the arc length of a circle that has an arc measure of 53° and a radius of 7 cm?

4. What is the area of the sector with the same measurements from Question #3?

Lesson 10.8 Geometric Probability

Probability is the likelihood that an event is going to (or not) occur. When the possibly outcomes are equally likely to happen, the theoretical probability of an event is the ratio of the number of favorable outcomes to the number of possible outcomes. (what you want out of the total)

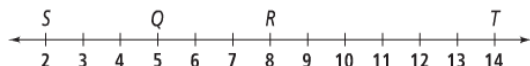$$P(event) = \frac{\text{\# of favorable outcomes}}{\text{\# of possible outcomes}}$$

Key Concept   Probability and Length

Point S on $\overline{AD}$ is chosen at random. The probability that S is on $\overline{BC}$ is the ratio of the length of $\overline{BC}$ to the length of $\overline{AD}$.
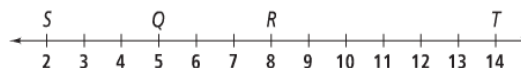
$$P(S \text{ on } \overline{BC}) = \frac{BC}{AD}$$

Ex. Point K on segment ST is chosen at random. What is the probability that K lies on segment QR?

1 Point H on segment ST is selected at random. What is the probability that H lies on segment SR?

Ex. A commuter train runs every 25 min. If a commuter arrives at the station at a random time, what is the probability that the commuter will have to wait at least 10 min for the train?
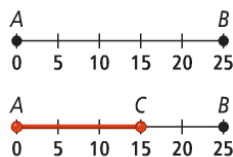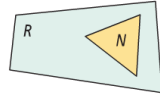
2 What is the probability that a commuter will have to wait no more than 5 min for the train?
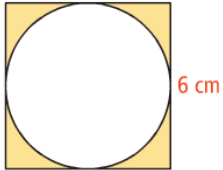
Key Concept   Probability and Area

Point S in region R is chosen at random. The probability that S is in region N is the ratio of the area of region N to the area of region R.
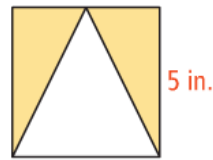
$$P(S \text{ in region } N) = \frac{\text{area of region } N}{\text{area of region } R}$$

Ex. A circle is inscribed in a square. Point Q in the square is chosen at random. What is the probability that Q lies in the shaded region?

6 cm

Ex. An archery target has 5 colored scoring zones formed by concentric circles. The target's diameter is 122 cm. The radius of the yellow zone is 12.2 cm. The width of each of the other zones is also 12.2 cm. If an arrow hits the target at a random point. What is the probability that it hits the red zone?

3 A triangle is inscribed in a square. Point T in the square is selected at random. What is the probability that T lies in the shaded region?

5 in.

4 If an arrow hits the target at a random point, is it more likely to hit the black zone or the red zone?