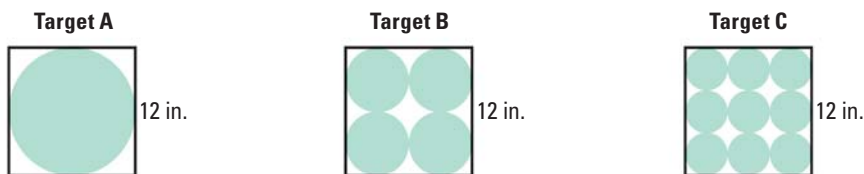


34. **CHALLENGE** Suppose you throw a dart at each square target below. Assume that the dart is equally likely to hit any point inside the target.



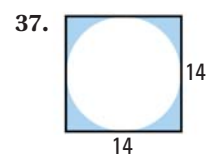
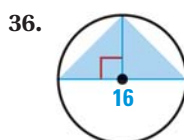
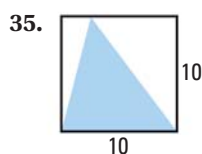
- a. **Calculate** What is the probability that the dart lands inside the circle in target A? inside a circle in target B? inside a circle in target C?
- b. **Generalize** Consider the general case where a square target with sides 12 inches long contains  $n^2$  identical circles arranged in  $n$  rows and  $n$  columns. Make a conjecture about the probability that a dart lands inside one of the circles. Then prove your conjecture.

## PROBLEM SOLVING

### EXAMPLE 5

on p. 701  
for Exs. 35–37

**GEOMETRIC PROBABILITY** Find the probability that a dart thrown at the given target will hit the shaded region. Assume the dart is equally likely to hit any point inside the target.



**TEXAS @HomeTutor** for problem solving help at classzone.com

38. **JURY SELECTION** A jury of 12 people is selected from a pool of 30 people that includes 12 men and 18 women. What is the probability that the jury will be composed of 12 women?

**TEXAS @HomeTutor** for problem solving help at classzone.com

39. **ARCHERY** The standard archery target used in competition has a diameter of 80 centimeters. Find the probability that an arrow shot at the target will hit the center circle, which has a diameter of 16 centimeters. Assume the arrow is equally likely to hit any point inside the target.



40. **MULTIPLE REPRESENTATIONS** On a typical weekday, there are 1,181,100 one-way trips taken on the public transportation system operated by the Massachusetts Bay Transit Authority. Of these trips, 376,900 are bus rides. Suppose a one-way trip is selected at random.
- Using Fractions** What is the probability, expressed as a fraction, that the trip was taken on a bus?
  - Using Decimals** What is the probability, expressed as a decimal, that the trip was taken on a bus?
  - Using Percents** What is the probability, expressed as a percent, that the trip was taken on a bus?
  - Using Odds** What are the odds in favor of the trip having been on a bus?