

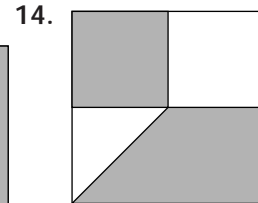
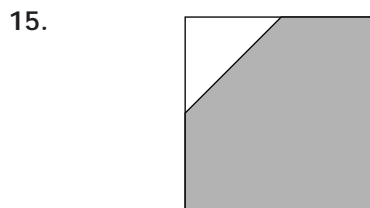
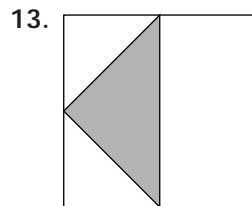
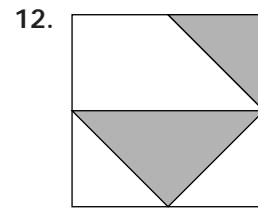
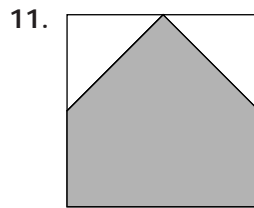
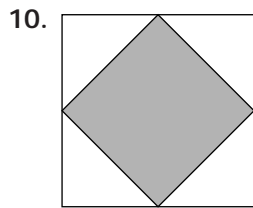
# Practice 83

FOR USE WITH SECTION 13.1

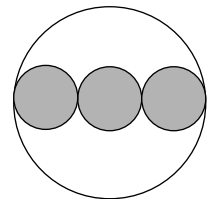
Find the probability of choosing each type of card at random from a standard deck.

- |                    |                        |                          |
|--------------------|------------------------|--------------------------|
| 1. a jack          | 2. a spade             | 3. not a diamond         |
| 4. a red face card | 5. an ace or a two     | 6. a black non-face card |
| 7. a black 10      | 8. the ace of diamonds | 9. a face card or an ace |

The targets shown are square, and the vertices along the sides of the square are located at the midpoints of those sides. Find the probability that a randomly thrown dart hits the shaded region of each target.



16. The diagram at the right shows three congruent circles whose centers lie on a diameter of the large circle. Each pair of adjacent circles are tangent, and the small circles on either end are tangent to the large circle.



- Suppose the larger circle has radius  $r$ . What is the radius of each of the smaller circles?
- What is the probability that a randomly chosen point inside the large circle lies in one of the smaller circles?
- Suppose there were  $n$  circles in the same configuration, instead of 3. Answer parts (a) and (b) for this situation.

17. **Open-ended Problem** Draw a careful diagram of a target of any shape, with part of the target shaded. Describe both the shaded and unshaded regions carefully, and give the measurements necessary to find the areas of the two regions. Calculate the probability that a dart that hits the target will land inside your shaded region.