**Module 13   Perimeter, Area, and Volume**
**Lesson 2   Area**

Set 1

1 Find how many unique rectangles you can form with an area of 48 square centimeters, using only whole number dimensions.

2 The Moon Rocks football team has a stadium measuring 500 feet by 300 feet. The playing field, including sidelines, is 384 feet by 184 feet. How much area do they have left for everything else, such as concessions stands, bleachers, and aisles?
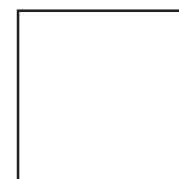
300 ft

184 ft

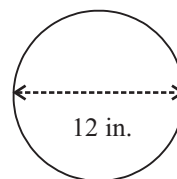**384 ft**

500 ft
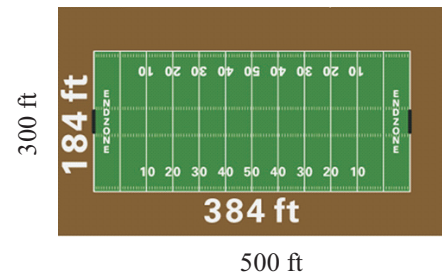
Set 2

1 Estimate the area of the skating rink.

30 ft

10 ft   20 ft   10 ft

30 ft
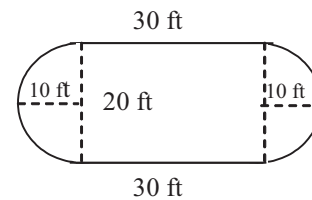
2 Which makes a larger pizza and by how much: a 12-inch-diameter circular pizza pan or a 12-inch-square pizza pan?

12 in.

12 in.

Possible Answers

Set 1

1. There are five unique rectangles using whole numbers dimensions that have an area of 48 square centimeters: 1×48, 2×24, 3×16, 4×12, and 6×8.

2. Subtract the playing field and sidelines from the concessions area and bleachers.

   Stadium: $A = 300(500)$
   $A = 150{,}000$ ft^2

   Field: $A = 384(184)$
   $A = 70{,}656$ ft^2

   $150{,}000 - 70{,}656 = 79{,}344$

   There are 79,344 square feet available for concessions, bleachers, and aisles.

Set 2

1. The two ends are semicircles, so put those together to form a circle with a radius of 10 feet.
   Circle: $A = \pi r^2$
   $A = \pi(10)^2 = (3.14)100 \approx 314$ ft^2
   Rectangle: $A = lw$
   $A = 20 \times 30 = 600$ ft^2

   Add the parts together.
   Total: $A \approx 314$ ft^2 + 600 ft^2
   $A \approx 914$ ft^2

2. **Circular:** $A = \pi r^2 = \pi(6)^2 = \pi 36$
   $A \approx 113$ in.^{2}

   Square: $A = s^2 = 12^2 = 144$ in.^{2}

   144 in.^{2} $- 113$ in.^{2} $= 31$ in.^{2}

   The square pan is about 31 square inches larger.