



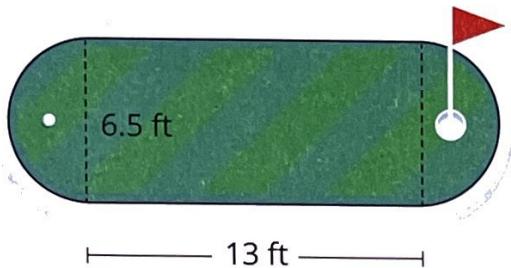
HABITS OF MIND

- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.

Composite Figure Problems

Now that you know how to determine the area of a circle, you can calculate the area of more interesting composite figures.

1 A miniature golf course designs a putting green composed of a rectangle and two semicircles. Determine the approximate amount of turf needed to cover the putting green.



$$\square + \bigcirc$$

or

$$\square + 2\Delta$$

TAKE NOTE . . .

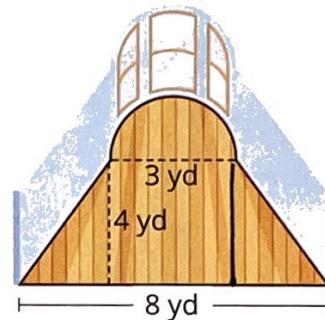
A semicircle is half of a circle.

2 A trapezoid and a semicircle compose the floorplan of a room with a curved bay window. Determine the approximate amount of flooring needed to cover the room.

$$\Delta + 2\Delta + \square$$

or

$$\square + \Delta$$

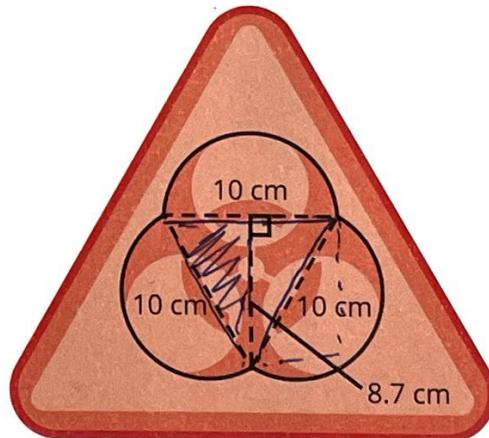


3 A triangle and three semicircles compose a warning label on a sticker. Determine the approximate area of the warning label.

$$3\Delta + \Delta$$

or

$$1\frac{1}{2}\bigcirc + \Delta$$

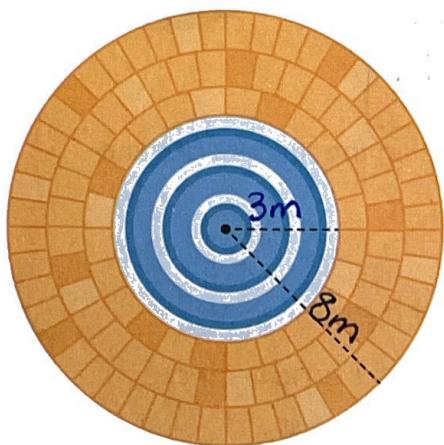




Shaded Region Problems

You have worked with composite figures by adding on areas. Now let's think about subtracting areas.

1 A circular fountain centered within a larger circle creates a walkway around the fountain. The radius of the fountain is 3 meters and the radius of the larger circle is 8 meters. Calculate the approximate area of the walkway around the fountain.



$$\textcircled{8} - \textcircled{3}$$

$$3.14 \cdot 8^2 - 3.14 \cdot 3^2$$

700.96 - 28.26

172.7 m² is the area of
the walkway

2 Anita sets a sprinkler in the center of her square garden. The area the sprinkler waters creates a circle inscribed in the square. Determine the approximate area of Anita's garden that the sprinkler does not water.



□ - ○

$$30^2 - 3.14 \cdot 15^2$$

900 - 706.5

1 193.5 ft^2 is the area

that does not get water



ACTIVITY 3 Continued



5 What is different about their strategies?

6 Which strategy do you prefer?

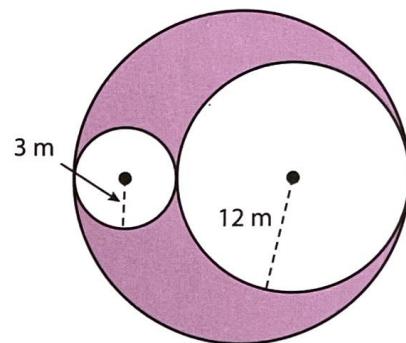
7 Determine the area of each shaded region.

(a) One medium circle and one small circle touch each other, and each circle touches the large circle.

$$\textcircled{30} - \textcircled{12} - \textcircled{3}$$

$$3.14 \cdot 15^2 - 3.14 \cdot 12^2 - 3.14 \cdot 3^2$$

$$226.08 \text{ m}^2 = \text{shaded area}$$



(b) A rectangle is inscribed in a circle. This means all the vertices of the rectangle touch the circumference of the circle.

$$\textcircled{10} - \square$$

$$3.14 \cdot 5^2 - 8 \cdot 6$$

$$30.5 \text{ cm}^2 = \text{shaded region}$$

