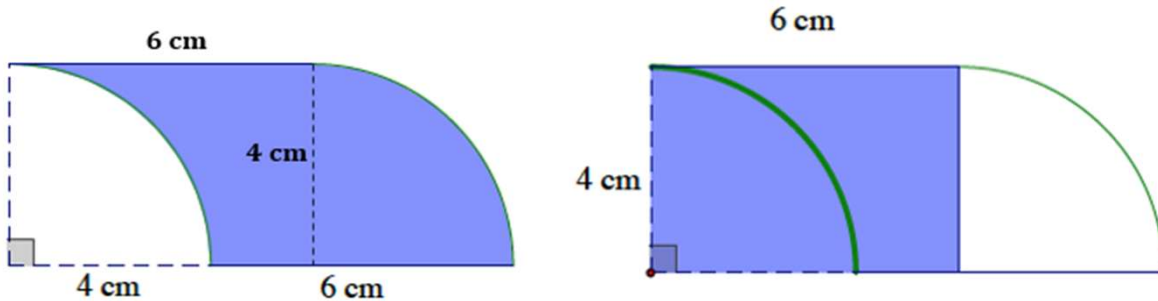
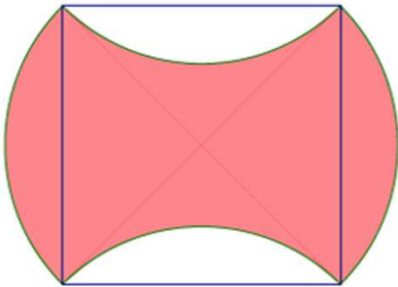


## Shaded Area Worksheets

1. The following region is bounded by the arcs of two quarter circles, each with a radius of  $4\text{ cm}$ , and by line segments  $6\text{ cm}$  in length. The region on the right shows a rectangle with dimensions  $4\text{ cm}$  by  $6\text{ cm}$ . Show that both shaded regions have equal areas.

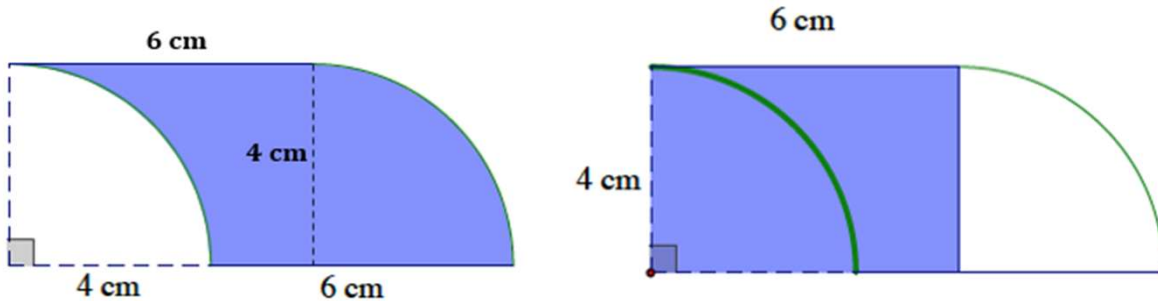


2. A square is inscribed in a paper disc (i.e., a circular piece of paper) with a radius of  $8\text{ cm}$ . The paper disc is red on the front and white on the back. Two edges of the circle are folded over. Write and explain a numerical expression that represents the area of the figure. Then, find the area of the figure.



## Shaded Area Worksheets

1. The following region is bounded by the arcs of two quarter circles, each with a radius of 4 cm, and by line segments 6 cm in length. The region on the right shows a rectangle with dimensions 4 cm by 6 cm. Show that both shaded regions have equal areas.



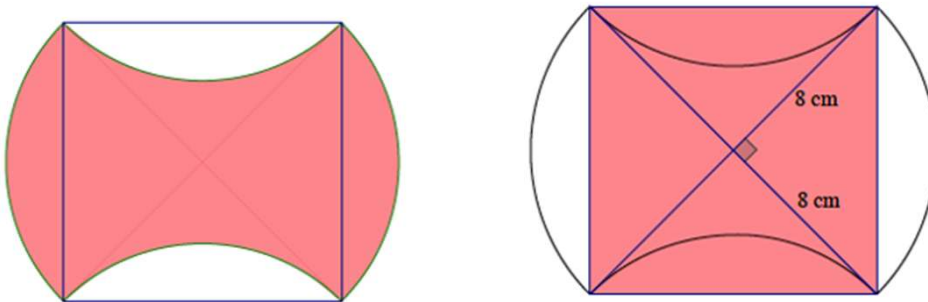
$$A = \left( (4 \text{ cm} \cdot 6 \text{ cm}) - \frac{1}{4}\pi(4 \text{ cm})^2 \right) + \frac{1}{4}\pi(4 \text{ cm})^2$$

$$A = 24 \text{ cm}^2$$

$$A = 4 \text{ cm} \cdot 6 \text{ cm}$$

$$A = 24 \text{ cm}^2$$

2. A square is inscribed in a paper disc (i.e., a circular piece of paper) with a radius of 8 cm. The paper disc is red on the front and white on the back. Two edges of the circle are folded over. Write and explain a numerical expression that represents the area of the figure. Then, find the area of the figure.



Numeric expression for the area:  $4 \left( \frac{1}{2} \cdot 8 \text{ cm} \cdot 8 \text{ cm} \right)$

The shaded (red) area is the same as the area of the square. The radius is 8 cm, which is the length of one leg of each of the four equal-sized right triangles within the square. Thus, we find the area of one triangle and multiply by 4.

The area of the shaded region is  $128 \text{ cm}^2$ .

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