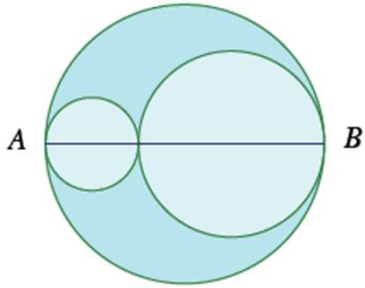
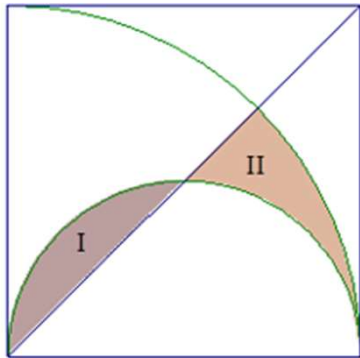


Shaded Area Worksheets

1. Three circles have centers on segment AB . The diameters of the circles are in the ratio 3:2:1. If the area of the largest circle is 36 ft^2 , find the area inside the largest circle but outside the smaller two circles.

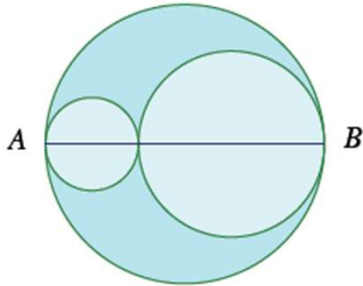


2. A square with a side length of 4 ft. is shown, along with a diagonal, a quarter circle (with a side of the square as its radius), and a half circle (with a side of the square as its diameter). Find the exact, combined area of regions I and II.



Shaded Area Worksheets

1. Three circles have centers on segment AB . The diameters of the circles are in the ratio 3:2:1. If the area of the largest circle is 36 ft^2 , find the area inside the largest circle but outside the smaller two circles.



Since all three circles are scale drawings of each other, the ratio of the areas of the circles is 9:4:1. This ratio provides a means to find the areas of the two smaller circles.

Area of medium-sized circle in ft^2 :

$$\frac{9}{4} = \frac{36}{x}$$

$$x = 16$$

The area of the medium-sized circle is 16 ft^2 .

Area of small-sized circle in ft^2 :

$$\frac{9}{1} = \frac{36}{y}$$

$$y = 4$$

The area of the small-sized circle is 4 ft^2 .

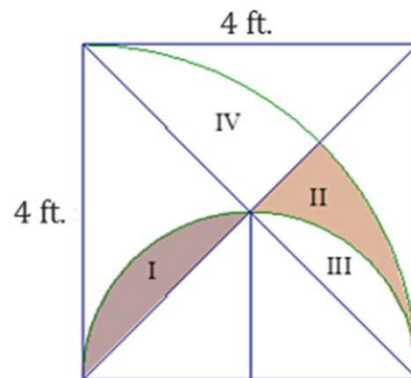
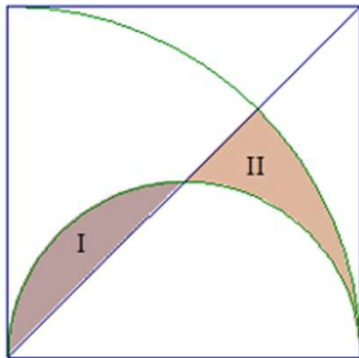
The area inside the largest circle but outside the smaller two circles is

$$A = 36 \text{ ft}^2 - 16 \text{ ft}^2 - 4 \text{ ft}^2$$

$$A = 16 \text{ ft}^2.$$

The area inside the largest circle but outside the smaller two circles is 16 ft^2 .

2. A square with a side length of 4 ft. is shown, along with a diagonal, a quarter circle (with a side of the square as its radius), and a half circle (with a side of the square as its diameter). Find the exact, combined area of regions I and II.



Since the area of I is the same as the area of III, we need to find the combined area of II and III. The combined area of II and III is half the area of II, III, and IV. The area of II, III, and IV is the area of the quarter circle minus the area of the triangle.

$$A_{II \text{ and } III} = \frac{1}{2} \left(\frac{1}{4} \pi (4 \text{ ft.})^2 - \frac{1}{2} \cdot 4 \text{ ft.} \cdot 4 \text{ ft.} \right)$$

$$A_{II \text{ and } III} = \frac{1}{2} \left(\frac{16\pi}{4} \text{ ft}^2 - \frac{4 \text{ ft.} \cdot 4 \text{ ft.}}{2} \right)$$

$$A_{II \text{ and } III} = (2\pi - 4) \text{ ft}^2$$

The combined area of I and II is $(2\pi - 4) \text{ ft}^2$

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