

Chapter 7 Final Review Extra Problems

1. Describe how the sides relate in a 30-60-90 triangle.
2. Describe how the sides relate in a 45-45-90 triangle.
3. What is the area of the segment formed by a 120° sector of a circle with radius 4 *cm*?
Leave answer in reduced fraction form.
4. Find the length of the arc bounded by a 92° center angle of a circle with diameter 11.
Leave answer in reduced fraction form.
5. Find the area of a sector formed by a 260° center angle of a circle with a radius of 5.
Leave answer in reduced fraction form.

Chapter 7 Final Review Extra Problems

1. Describe how the sides relate in a 30-60-90 triangle.

$$x / x\sqrt{3} / 2x$$

2. Describe how the sides relate in a 45-45-90 triangle.

$$x / x / x\sqrt{2}$$

3. What is the area of the segment formed by a 120° sector of a circle with radius 4 cm ?
Leave answer in reduced fraction form.

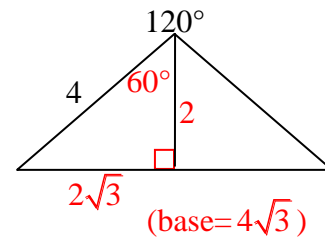
$$r = 4, \widehat{m\text{arc}} = 120^\circ$$

$$A_{\text{circle}} = \pi r^2 = \pi(4)^2 = 16\pi\text{ cm}^2$$

$$A_{\text{sector}} = \frac{\widehat{m\text{arc}}}{360} A_{\text{circle}} = \frac{120}{360}(16\pi) = \frac{16}{3}\pi\text{ cm}^2$$

$$A_{\text{triangle}} = \frac{1}{2}bh = \frac{1}{2}(4\sqrt{3})(2) = 4\sqrt{3}$$

$$A_{\text{segment}} = A_{\text{sector}} - A_{\text{triangle}} = \left(\frac{16}{3}\pi - 4\sqrt{3}\right)\text{ cm}^2$$



4. Find the length of the arc bounded by a 92° center angle of a circle with diameter 11 .
Leave answer in reduced fraction form.

$$\text{len } \widehat{\text{arc}} = \frac{\widehat{m\text{arc}}}{360} (\text{Circumference}) = \frac{\widehat{m\text{arc}}}{360} \pi d = \frac{92}{360}(11\pi) = \frac{1012}{360}\pi = \frac{253}{90}\pi\text{ in}^2$$

5. Find the area of a sector formed by a 260° center angle of a circle with a radius of 5 .
Leave answer in reduced fraction form.

$$A_{\text{sector}} = \frac{\widehat{m\text{arc}}}{360} A_{\text{circle}} = \frac{260}{360}(\pi \cdot 5^2) = \frac{13}{18} \cdot 25 \cdot \pi = \frac{325}{18}\pi\text{ units}^2$$