Topic: Area of a circular sector

Question: Find the area of the circular sector.

Consider a circle of radius 5 miles, and find the area A (in square miles) of a sector of that circle which subtends a central angle of 135 degrees.

Answer choices:

A $A = \dfrac{75}{8}$

B $A = \pi \left(\dfrac{75}{8} \right)$

C $A = \dfrac{5{,}625}{2}$

D $A = \pi \left(\dfrac{5{,}625}{2} \right)$

Solution: B

Since the central angle θ is in degrees, the area of such a circular sector is

$$A = \pi r^2 \left(\frac{\theta}{360} \right)$$

$$A = \pi \left(5^2 \right) \left(\frac{135}{360} \right)$$

$$A = \pi (25) \left(\frac{3}{8} \right)$$

$$A = \pi \left(\frac{75}{8} \right)$$

Topic: Area of a circular sector

Question: Find the area of the circular sector.

Find the area A (in square centimeters) of the sector of a circle of radius 6 centimeters if that sector is bounded by an arc that subtends a central angle of $(7/4)\pi$ radians.

Answer choices:

A $\qquad A = \dfrac{63}{2}\pi$

B $\qquad A = \dfrac{63}{2}$

C $\qquad A = \pi\left(\dfrac{7}{2}\right)$

D $\qquad A = 7\pi$

Solution: A

Since the central angle θ is in radians, the area of such a circular sector is

$$A = r^2 \left(\frac{\theta}{2} \right)$$

$$A = (6^2) \left(\frac{\frac{7}{4}\pi}{2} \right)$$

$$A = 36 \left(\frac{7\pi}{8} \right)$$

$$A = \left[\frac{36(7)}{8} \right] \pi$$

$$A = \left[\frac{9(7)}{2} \right] \pi$$

$$A = \frac{63}{2} \pi$$