

Name: _____

CC Geometry

Area of a Sector of a Circle

- 1) In a circle whose radius is 4, what is the measure of the central angle of a sector whose area is 6π ?
- 2) In a circle whose radius is 6, what is the area of a sector, in terms of π , whose central angle contains 40° ?
- 3) In a circle whose radius is 9, find the measure of the central angle of a sector whose area is 27π . [*Show all work.*]
- 4) In a circle whose radius is 10, find the area of a sector, in terms of π , whose central angle contains 72° . [*Show all work.*]
- 5) Determine and state, in terms of π , the area of a sector that intercepts a 40° arc of a circle with a radius of 4.5. [*Show all work.*]

1) 135°

2) 4π

3) 120°

WORK SHOWN: $A = \left(\frac{n}{360}\right)\pi r^2$, $27\pi = \left(\frac{n}{360}\right)\pi(9)^2$, $27 = \frac{81n}{360}$, $9,720 = 81n$, $n = 120$

4) 20π

WORK SHOWN: $A = \left(\frac{n}{360}\right)\pi r^2 = \left(\frac{72}{360}\right)100\pi = 20\pi$

5) $\frac{9\pi}{4}$

WORK SHOWN: $40^\circ \cdot \frac{\pi}{180} = \frac{2\pi}{9}$; $A = \frac{1}{2}\theta r^2 = \frac{1}{2}\left(\frac{2\pi}{9}\right)\left(\frac{81}{4}\right) = \frac{1}{2}\left(\frac{\pi}{1}\right)\left(\frac{9}{2}\right) = \frac{9\pi}{4}$