Geometry (G.C.5)   Name: _____

Unit Five: Arc Length (HW16)   Date: _____ Period: _____

1. Determine the arc length.

a) Central Angle of 90°,
radius of 8 cm

b) Central Angle of 72°,
radius of 10 cm

s = _____ (E)   s = _____ (E)

c) Central Angle of $\dfrac{4\pi}{5}$ $rad.$,

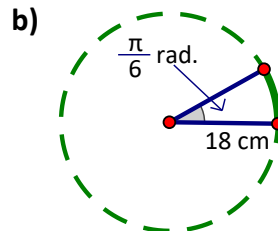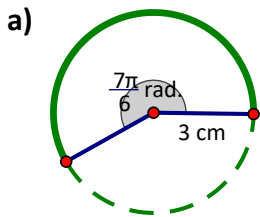**radius of 10 cm**

d) Central Angle of $\dfrac{2\pi}{3}$ $rad.$,

radius of 15 cm

s = _____ (E)   s = _____ (E)

2. After class Angela says, "I didn't understand how he got the formula for arc length, s = Ɵr. Did you understand it?" Explain to Angela where the formula comes from.

3. Determine the arc length of the following.

a)

$\dfrac{7\pi}{6}$ rad.

3 cm

b)

$\dfrac{\pi}{6}$ rad.

18 cm

s = _____ (E)   s = _____ (E)

4. Circle G has a radius of 7 cm.   After computing an arc on circle G Nancy finds the arc length to be 14 cm. She exclaims, "The central angle must be 2 radians." How did she know this?

5. Determine the missing information.

a) s = 4π cm, r = 8 cm   b) Θ = 0.8 rad., s = 8 cm   c) r = 4.5 cm, Θ = $\frac{\pi}{3}$ rad.,   d) Θ = $\frac{7\pi}{4}$ rad., s = 28π cm

Θ = _____ rad.   r = _____ cm   S = _____ cm   r = _____ cm

6. Find the radius of a circle in which a central angle of 5 radians intercepts an arc length of 62.5 feet?

7. Find the measure (in radians) of a central angle that intercepts an arc of length 16 cm in a circle of radius 8 cm.

8. Find the measure (in radians) of a central angle that intercepts an arc of length 24π cm in a circle of radius 10 cm.