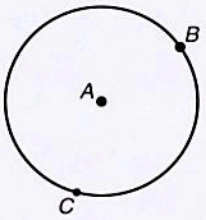
Name Key Date

Gears

Arc Length

degree

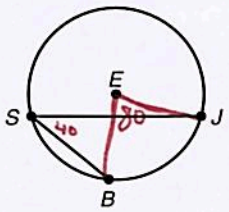
1. In circle *A* shown describe the difference between the measure of minor arc *BC* and the length of minor arc *BC*.



linear

2. In circle *E* shown, the radius of the circle is 16 centimeters and $m\angle JSB$ is 40°. Determine the length of $\overset{\frown}{JB}$.

22.34 cm



12

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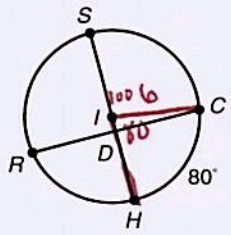
3. In circle *I* shown, the radius is 6 millimeters and $m\overset{\frown}{HC}$ is 80°.



a. Determine the length of $\overset{\frown}{SC}$ in millimeters.

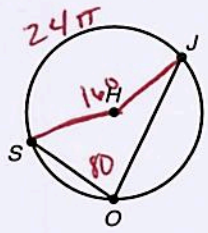
10.47 mm

b. Determine the measure of $\overset{\frown}{SC}$ in radians.

$100° \rightarrow 100 \cdot \frac{\pi}{180} = \frac{100\pi}{180}$

1.75

4. In circle *H* shown, the length of $\overset{\frown}{SJ}$ is 24π centimeters and $m\angle JOS$ is 80°. Determine the length of a diameter of circle *H*.



$24\pi = \frac{4}{9} \cdot \pi r^2$

$54 = r^2$

$d = 14.7$ cm

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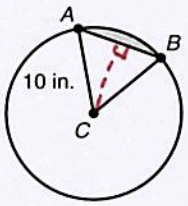
Name _____ Date _____

Playing Darts

Sectors and Segments of a Circle

In circle *C* shown, $\triangle ABC$ is an equilateral triangle and $AC = 10$ inches.



1. Calculate the area of sector *ACB*. Express your answer in terms of π and as a decimal rounded to the nearest hundredth.

$\frac{100\pi}{6}$ or 52.36 in^2

2. The height of $\triangle ABC$ is approximately 8.66 inches. Calculate the area of $\triangle ABC$.

43.3 in^2

3. Calculate the area of segment *AB* of circle *C*. Express your answer in terms of π and as a decimal rounded to the nearest hundredth.

$\frac{100\pi}{6} - 43.3$ or 9.06 in^2

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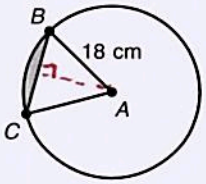
In circle *A*, the radius is 18 centimeters and $\triangle ABC$ is an equilateral triangle.



4. Calculate the area of sector *CAB*. Express your answer in terms of π and as a decimal rounded to the nearest hundredth.

54π cm^2 or 169.65 cm^2

5. Calculate the area of segment *BC*. Express your answer in terms of π and as a decimal rounded to the nearest hundredth.

12

$54\pi - 140.3$ cm^2

or

29.35 cm^2

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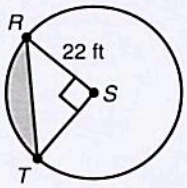
Name _____ Date _____

In circle *S*, the radius is 22 feet and $m\angle RST = 90°$.



6. Calculate the area of sector *RST*. Express your answer in terms of π and as a decimal rounded to the nearest hundredth.

121π ft^2

or

380.13 ft^2

7. Calculate the area of segment *RT*. Express your answer in terms of π and as a decimal rounded to the nearest hundredth.

$121\pi - 242$ ft^2

or

138.13 ft^2

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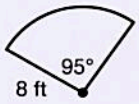
Name _____ Date _____

Circle K. Excellent!

Circle Problems

1. Deborah would like to put edging along the circular edge of her flower garden. The following is a diagram of her flower garden. How much edging will she need if she just puts it along the circular part? Show all of your work and use 3.14 for π. Round your answer to the nearest hundredth if necessary.



13.26 ft

2. Jonathan has a circular pool in his backyard with an 18-foot diameter. He would like to pave a 6-foot-wide circle around his pool. How much paved area will Jonathan have around his pool? Show all of your work and use 3.14 for π.

30

Area big O − area pool

$15^2\pi - 9^2\pi$

452.39 ft^2

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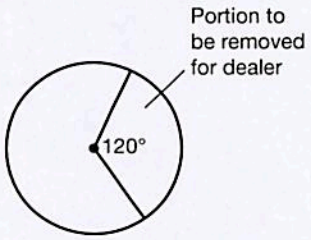
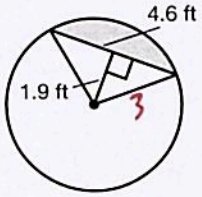
3. A company has a circular card table with a 4-foot diameter. They want to remove a portion to provide a place for the dealer to stand. See the following diagram. How much surface area of the table will be left for those who are sitting at the table? Show all your work and use 3.14 for π. Round your answer to the nearest hundredth if necessary.



8.38 ft²

4. Geneva has a circular table with a 6-foot diameter that she would like to put in her new kitchen. In order for it to fit up against the wall, she must cut off the portion of the table that is shaded in the following diagram. The measure of the central angle is 100°. How much surface area will she lose when she removes this part of the table? Show all your work and use 3.14 for π.



sector − △

7.85 − 4.37 = 3.48 ft²

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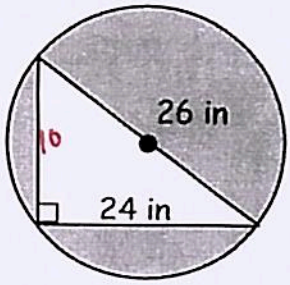
11.4-11.5 *Arc Length and Sector Area*
Pre-AP Geometry

Name _____
Period _____ Date _____

EVALUATE

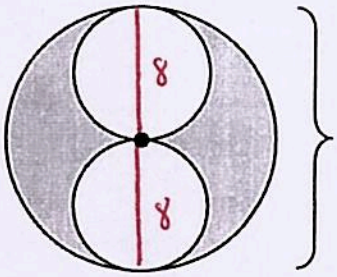
Find the area of the shaded regions. Assume that parts of circles that appear to be semicircles are semicircles. All curves are fractions of an arc. Leave answers with pi and round to three decimal places.

1.



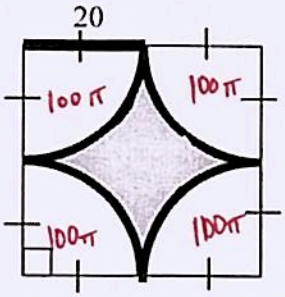
$169\pi - 120$
or
$410.93\ in^2$

2.



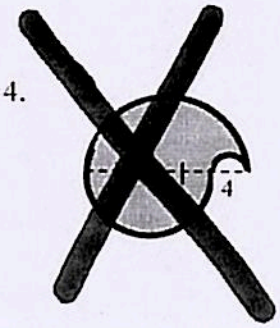
32π
or
$100.53\ yd^2$

3.

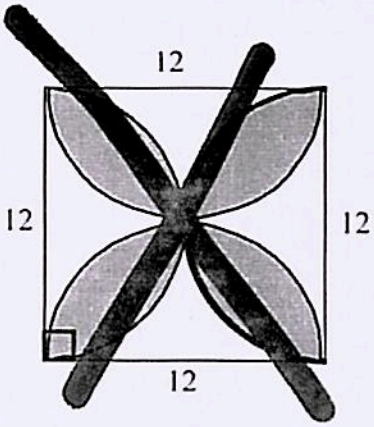


$1600 - 400\pi$
or
343.36

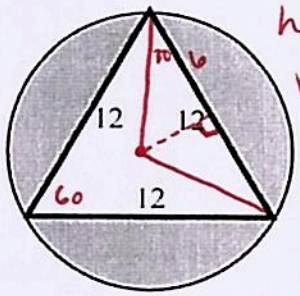
4.



5.



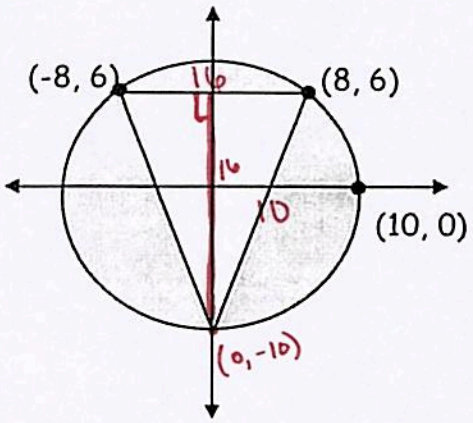
6.



$h = 3.46$
$r = 6.93$

$48\pi - 10.39$
or
140.4

7.



$100\pi - 128$

or

186.16

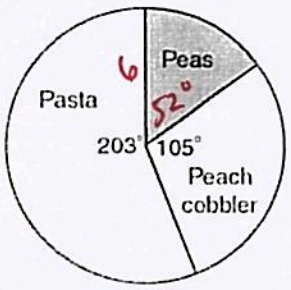
8. An advertisement states that a Roto-Sprinkler can water a circular region with area 1000 ft^2. Find the diameter of this region to the nearest foot.

≈ 18 ft

9. Sampson's dog, Cecil, is tied to a post by a chain 7 meters long. How much play area does Cecil have? Express your answer to the nearest square meter.

$\approx 154\ m^2$

10. A frozen dinner is divided into 3 sections on a circular plate with a 12-inch diameter.



What is the approximate length of the arc of the section containing peas?

5.45 in