Name: Date:
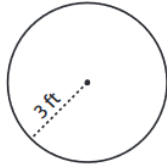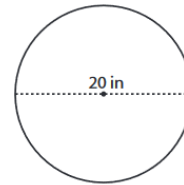
Unit 4 Circles and Volume
Practice 4.1 Finding Circumference and Arc Lengths

Find the exact circumference for each figure.

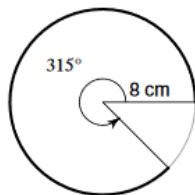| 1.	2.
3. A bike wheel has a diameter of 10 in. What is the circumference of the wheel?	4. A 26-inch diameter bicycle tire rotates 500 times. How many feet does the bicycle travel?

Find the exact length of each arc.

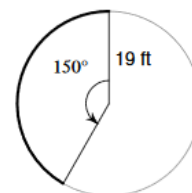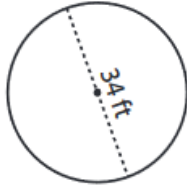| 5.	6.
$r = 18$ cm, $\theta = 60°$	$r = 16$ m, $\theta = 75°$
7.	8.
9. A circle has a radius of 11 units. Find the length of an arc intercepted by a central angle measuring $72°$.	10. A circle has a radius of 5 units. Find the measure of a central angle that intercepts an arc length of 15 units.

Unit 4 Circles and Volume
Practice 4.2 Areas of Sector
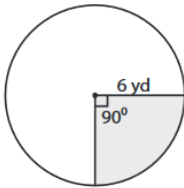
Find the exact area of the figure below.

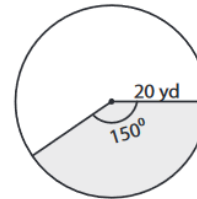| 1.	2. If the radius is 10 ft, what will be the area of the circle?
34 ft	
3. A circle has a circumference of 22π ft. What is its area?	4. The circumference of a circular park is 34π yd. What is the area of the park?

Find the area of each shaded region.

| 5.	6.
6 yd 90°	20 yd 150°
7. Find the area of a sector with a central angle of 44° and a radius of 56 units.	8. A circle has a diameter of 16 units. Find the area of a sector with an arc length of 6 units.
9. A rotating sprinkler sprays a stream of water 40 feet long. The sprinkler rotates 190°. What is the area of the portion of the yard that is watered by the sprinkler?	10. The area of one pizza is $9\pi\ in^2$. The pizza is cut into eighths. Find the area of one slice of pie.

Unit 4 Circles and Volume
Practice 4.3 Area

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1. Find the area of the triangle.

11 km
9.4 km
16 km
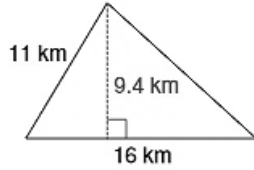
2. Find the area of the right triangle.
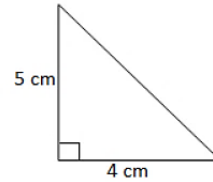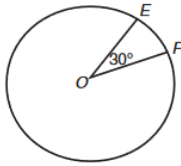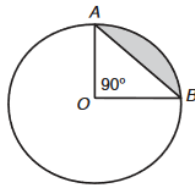
5 cm
4 cm

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3. If the radius of the circle is 15 feet, what is the area of sector EOF?
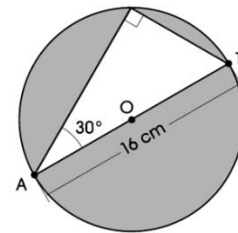
E
F
30°
O

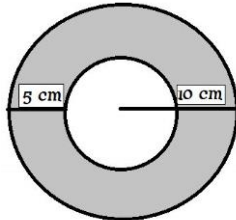4. If the radius of the circle is 14 inches, what is the area of the shaded segment?

C
90°
D
O

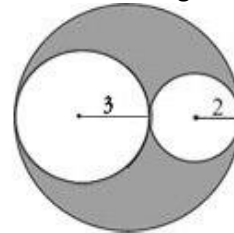5. If the radius of the circle is 6 centimeters, what is the area of the shaded segment?

A
90°
O
B

6. Find the area of the shaded region.

T
O
30°
16 cm
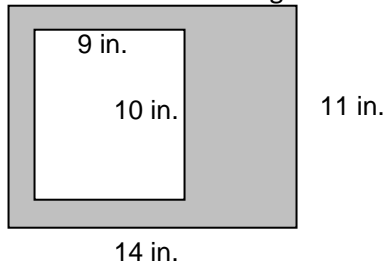A

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7. Find the area of the shaded region.

5 cm
10 cm
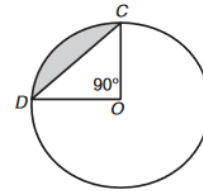
8. Find the area of the shaded region.

3
2

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9. Find the area of the shaded region.

9 in.
10 in.   11 in.
14 in.

10. Find the area of the shaded region.

10 km
20 km
20 km
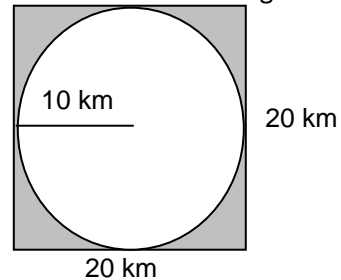
Unit 4 Circles and Volume
Practice 4.4 Application of Arc Length and Sectors

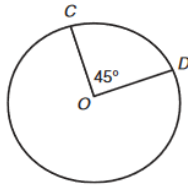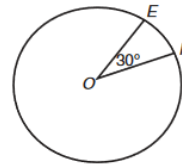|	
1. A standard dartboard has a radius of 170mm and is split into 20 equal sections. What is the arc length of a single section on a dartboard rounded to the nearest millimeter?	2. A horse is tied to a post in a grassy field. He can walk in a circle around the post. He has 300 square meters of grass to graze on. What is the circumference of the area that he is grazing on?
3. This is the first year Janis is playing softball. She has been practicing her batting. On her last swing the bat made an arc with a radius of 48 inches and swept through 255° of rotation. Assuming the arc is circular, what is the distance the tip of the bat travels to the nearest inch? How many feet is this rounded to the nearest foot?	4. Peter and his partner are conducting a physics experiment on pendulum motion. Their 30 cm pendulum traverses an arc of 15 cm. To the nearest degree, how many degrees of rotation did the pendulum swing?
5. Ashley has a sprinkler that has several varieties of coverage. The quarter-circle sprinkler head sprays water up to 20 feet from the head. What area will be covered by the spray of the quarter-circle sprinkler head to the nearest square foot?	6. On a basketball court, the free throw lane is marked off geometrically. This area of the court is called the key and is topped by a semicircle that has a diameter of 12 feet. Find the arc length of the semicircle to the nearest foot. Find the area of the semicircle to the nearest square foot.
7. Mom baked a Dutch apple pie in a 9-inch pie pan. She cut the pie into 6 equal pies so that everyone gets the same sized piece. a. Determine the central angle created by two pieces of pie. b. Determine the area covered by one piece of pie to the nearest tenth of a square inch.	8. A horse is tied to the corner of a square shack so it can graze while the owner does business inside the shack. The shack is 10 feet on each side, and the rope tethering the horse is 18 feet long. What is the total grazing area for the horse.

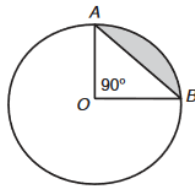Name: Date:

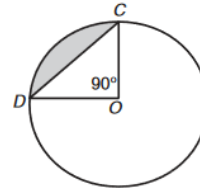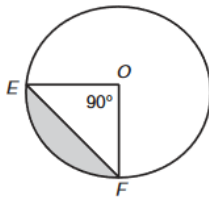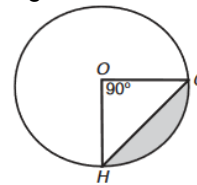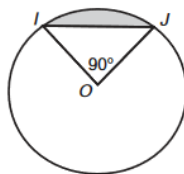|	
1. If the radius of the circle is 16 meters, what is the area of sector COD?	2. If the radius of the circle is 15 feet, what is the area of sector EOF?
3. If the radius of the circle is 6 centimeters, what is the area of the shaded segment?	4. If the radius of the circle is 14 inches, what is the area of the shaded segment?
5. If the radius of the circle is 17 feet, what is the area of the shaded segment?	6. If the radius of the circle is 22 centimeters, what is the area of the shaded segment?
7. If the radius of the circle is 25 meters, what is the area of the shaded segment?	8. If the radius of the circle is 30 centimeters, what is the area of the shaded segment?
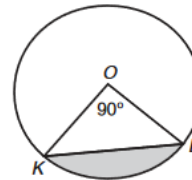
9. At Mickey's Mechanic Shop a pulley system is used to lift engines from cars. The pulley system consists of a cable that goes around a pulley with a radius 1 ft. To the nearest degree, how many degrees of rotation are required for an engine to be lifted 10 feet?
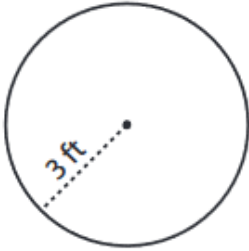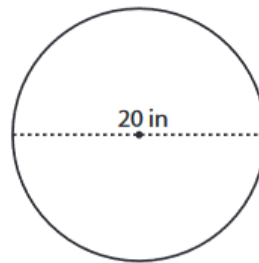
Unit 4 Circles and Volume
Practice 4.1 Finding Circumference and Arc Lengths
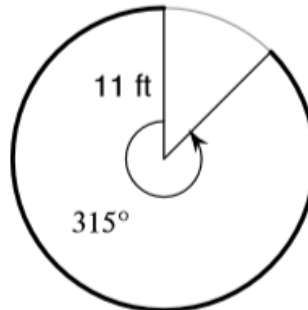
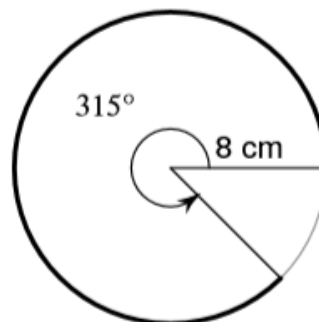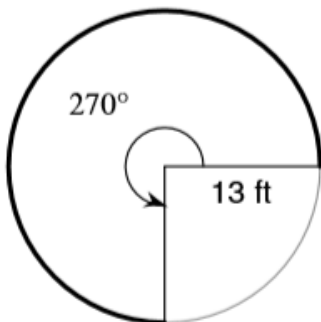|	
1. Find the circumference of the circle.	2. Find the circumference of the circle.

3 ft

20 in

3. If the circumference of a circle is 14π, what is the radius of the circle.	4. Find the arc length in terms of π.

11 ft

315°

5. Find the arc length in decimal form.	6. Find the arc length in both forms.

270°

13 ft

315°

8 cm

Unit 4 Circles and Volume
Practice 4.2 Areas of Sector

1. Find the area of the circle.	2. Find the area of the sector in terms of π.
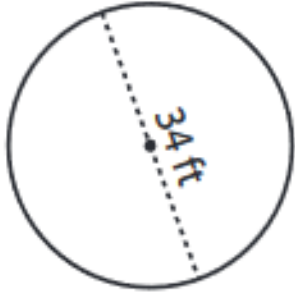
34 ft

60° 10 in
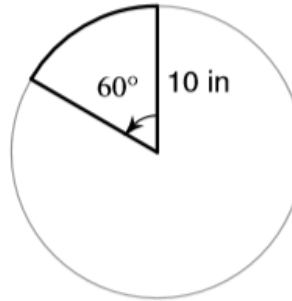
3. Find the area of the sector in decimal form.	4. Find the area of the sector in both forms.
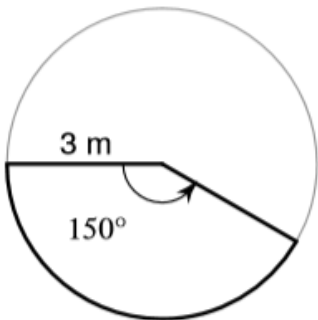
3 m

150°

14 in

315°
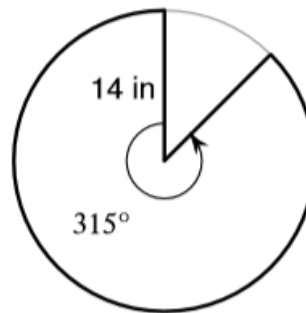
5. The area of one pizza is $9\pi \ in^2$. The pizza is cut into eighths. Find the area of one slice of pizza.	6. If the radius of the circle is 6 centimeters, what is the area of the shaded segment?

A

90°

O   B