Geometry Worksheet
Heron's Formula & Circle Areas

Name_____
Date **Period**

1. Given a triangle with sides 10, 12, and 14 inches long, find the length of the altitude upon the 12 inch side.

2. Find the area of a parallelogram with two adjacent sides 8 inches and 10 inches long and one diagonal 12 inches long.

3. Find the area of quadrilateral RSTV if $m\angle R = 90$, $RS = 12$, $ST = 8$, $TV = 7$, and $VR = 5$

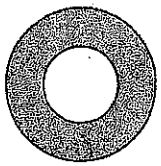
4. Given a triangle with sides 4, 6 and 8 inches long, find the length of the altitude upon the shortest side.

Note: A circle with radius r units has area $A = \pi r^2$ and circumference $C=2\pi r$ or $C=\pi d$

5. Find the area and circumference of a circle whose radius is 7.

6. Find the area and circumference of a circle whose diameter is 10.

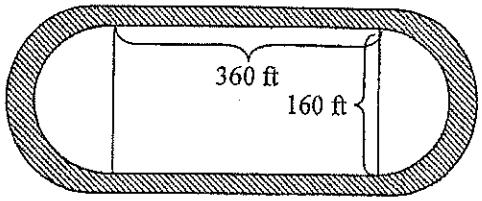
7. Find the area of the region bounded by two concentric circles with radii 10 inches and 6 inches.



8. The size of a bicycle is determined by the diameter of the wheel. If the bicycle is a 26" bike, and the wheel turns 10,000 revolutions, how far did the bicycle travel?

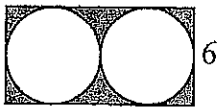
9. In order to travel a mile (5280 ft), how many revolutions would the wheel have to make?

10. A track is formed around a football field by adding a semicircle to each end. How far will an athlete run if he makes one lap around the track (running on the inside of the lane)?



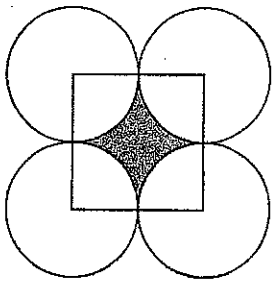
11. If the track lane is to be 4 feet wide, what will the area of the lane be?

12. The following circles are tangent to each other and to the sides of the rectangle. Find the area of the shaded region.



13. Find the perimeter of the shaded region.

14. The following four congruent are tangent and a square is created by joining the centers of the circles. (The side of the square has measure 14.) Find the area of the shaded region.



15. Find the perimeter of the shaded region.

Answers:

1. $h = 4\sqrt{6}$ in.
2. $A = 30\sqrt{7}\ in^2$
3. $A = (30 + 14\sqrt{3})u^2$
4. $h = \frac{3\sqrt{15}}{2}$ in
5. $C = 14\pi u$ and $A = 49\pi u^2$
6. $C = 10\pi u$ and $A = 25\pi u^2$
7. $64\pi\ in^2$
8. $260{,}000\pi \approx 816{,}814.1$ in
9. 775.7 revolutions
10. $(160\pi + 720) \approx 1222.7$ ft
11. $2880 + 656\pi \approx 2060.1 ft^2$
12. $A = (196 - 49\pi)u^2$
13. $P = (36 + 12\pi)u$
14. $A = (196 - 49\pi)u^2$
15. $P = 14\pi u$