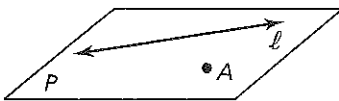Name _____ Date _____

In your own words, write the meaning of each vocabulary term.

antipodal points

Notes:

Core Concepts

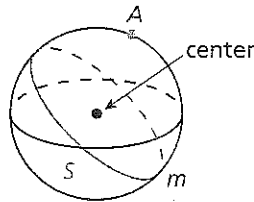### Euclidean Geometry and Spherical Geometry

Euclidean Geometry

Spherical Geometry

Plane P contains line ℓ and point A not on the line ℓ.

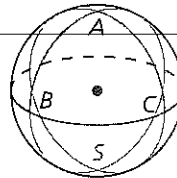Sphere S contains great circle m and point A not on m. Great circle m is a line.

The vertices of $\triangle ABC$ are points in plane P and the sides are segments. The sum of the interior angles of a triangle is $180°$.

The vertices of $\triangle ABC$ are points on Sphere S and the sides are arcs of great circles. The sum of the interior angles of a spherical triangle is greater than $180°$.

$m\angle A + m\angle B + m\angle C = 180°$

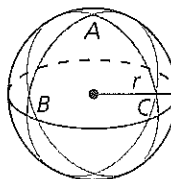$m\angle A + m\angle B + m\angle C = 180°$

Notes:

12.7 Notetaking with Vocabulary (continued)

Area of a Spherical Triangle

The area of $\triangle ABC$ on a sphere is

$$A = \frac{\pi r^2}{180°}(m\angle A + m\angle B + m\angle C - 180°)$$
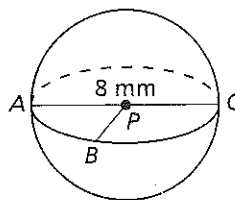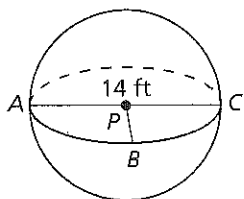
where r is the radius of the sphere.

Notes:

Extra Practice

In Exercises 1–4, use the diagram and the given arc measure to find the distances between points A and B.
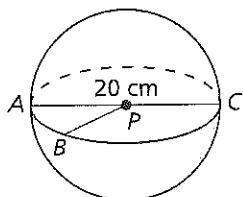
1. $m\overset{\frown}{AB} = 100°$

2. $m\overset{\frown}{AB} = 50°$

Name _____ Date _____
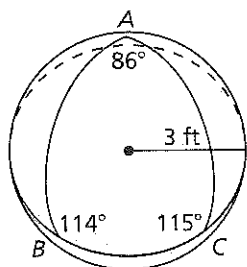
Extra Practice

3. $m\overarc{AB} = 25°$

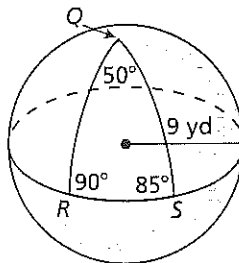**4.** $m\overarc{AB} = 125°$
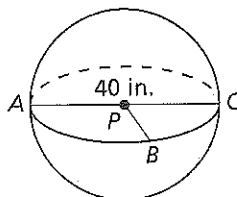
In Exercises 5–8, find the area of the spherical triangle.
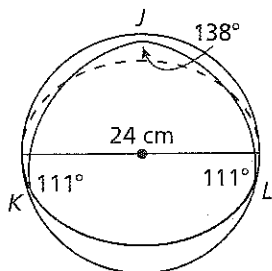
5. $\triangle ABC$

6. $\triangle QRS$

7. $\triangle JKL$

8. $\triangle MNP$
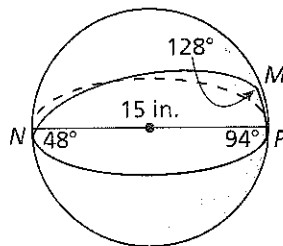
12.7 Puzzle Time

Why Did The Stable Boy Lose His Job?

A	B	C	D	E	F

Complete each exercise. Find the answer in the answer column. Write the word under the answer in the box containing the exercise letter.

great circle DESCARTES
point HAY
67.0 THE
24.8 IS
12.2 HORSE
antipodal HE

Complete the sentence.

A. The _____ points are the endpoints of a diameter of a sphere.

B. In spherical geometry, a plane is the surface of a _____.

C. In spherical geometry, a line is a _____.

D. The sum of the interior angles of a spherical triangle is _____ 180°.

Find the area of the spherical triangle (in cubic feet).

E.

F.

greater than BEFORE
less than AFTER
307.0 MANGER
equal to STRAW
sphere PUT
8.4 BARN