5A.13A **Learning Opportunity**

Volume of Spheres

Name: _____

You may use a calculator for your computation as long as you show the formulas you used and the steps of your work. Show your work on the attached paper. Use 3.14 to approximate π.

Why Are Mathematicians Like Airlines?

Choose the correct answer for each exercise and circle the letter next to it (most answers are rounded). Write the upper case letter in the box containing the lower case letter. Use 3.14 for π.

Find the volume of each ball.

1. $r = 1.5$ in.

2. $r = 12$ cm

3. $d = 2.28$ in.

4. $d = 21$ cm

5. $d = 1.68$ in.

6. $r = 4.3$ in.

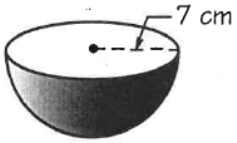
answers

- k • A — 5274.8 cm^3
- m • N — 28,900 gal
- p • S — 332.9 $in.^3$
- o • T — 113,040 cm^3
- n • O — 7234.6 cm^3
- g • V — 14.8 lb
- d • Y — 103.0 $in.^3$
- i • O — 678,240 cm^3
- f • U — 4846.6 cm^3
- g • S — 904,320 cm^3
- d • R — 694 mL
- h • E — 31,400 gal

Solve.

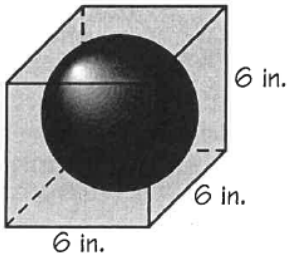
7. A spherical water storage tank has a radius of 10 ft. A cubic foot of water is about 7.5 gallons. How many gallons of water will the tank hold?

8. How many milliliters of soup will this hemispherical bowl hold? (1 cm^3 holds 1 mL)



9. A bowling ball has a diameter of 8.4 in. It is made of plastic that weighs 0.05 $lb/in.^3$ Find the weight of the bowling ball.

10. A sphere fits snugly inside a 6-in. cube as shown. What is the volume of the region inside the cube but outside the sphere?



11. Rimshot was comparing two spheres, one with a 30-cm radius and the other with a 60-cm radius.

a. Find the volume of the smaller sphere.

b. Find the volume of the larger sphere.

c. How many times greater is the volume of the larger sphere?

- b • R — 298.5 $in.^3$
- c • E — 14.1 $in.^3$
- l • S — 6
- k • I — 2.48 $in.^3$
- j • F — 105.2 $in.^3$
- m • L — 15.5 lb
- a • T — 6.2 $in.^3$
- j • P — 8
- p • D — 4.75 $in.^3$
- b • H — 718 mL
- a • C — 13.5 $in.^3$

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p