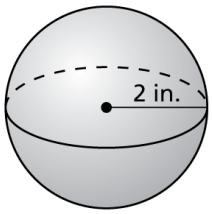
Name _____ Date _____

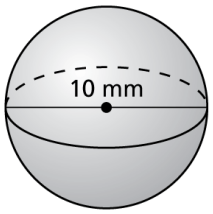
11.8 Practice A

In Exercises 1–3, find the surface area of the sphere.

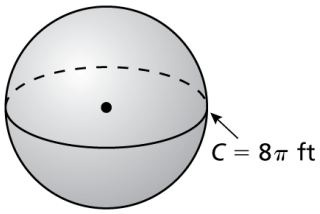
1.



2.



3.



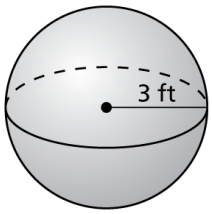
In Exercises 4 and 5, find the indicated measure.

4. the radius of a sphere with a surface area of 36π square meters

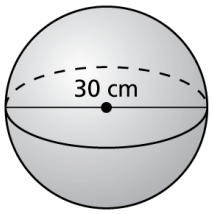
5. the diameter of a sphere with a surface area of 81π square yards

In Exercises 6–8, find the volume of the sphere.

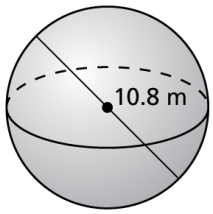
6.



7.



8.



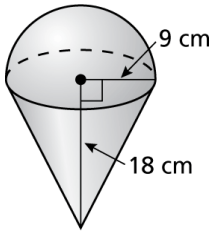
In Exercises 9 and 10, find the volume of the sphere with the given surface area.

9. Surface Area $= 4\pi$ in.^{2}

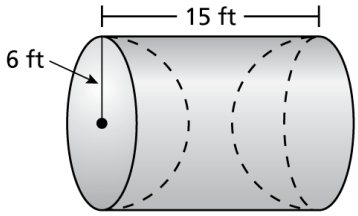
10. Surface Area $= 676\pi$ km^2

In Exercises 11 and 12, find the volume of the composite solid.

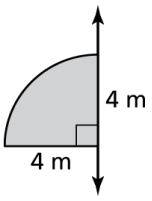
11.



12.



13. Find the surface area and volume of the solid produced by rotating the figure at the right around the given axis.



14. A sphere is inscribed in a cube with a volume of 8 cubic yards. What is the surface area of the sphere? Explain your reasoning.

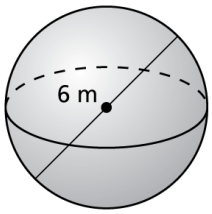
15. In 2000, the International Table Tennis Federation changed the official diameter of a table tennis ball from 38 millimeters to 40 millimeters. Without calculating surface areas and volumes, determine how the surface area and volume of the ball changed. Explain your reasoning. Find the surface areas and volumes to check your answer.

Name_____ Date _____

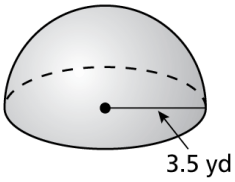
11.8 Practice B

In Exercises 1–3, find the surface area of the sphere or hemisphere.

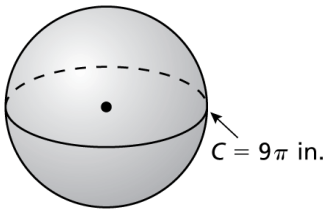
1.



2.



3.



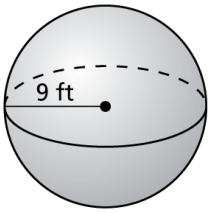
In Exercises 4 and 5, find the indicated measure.

4. the radius of a sphere with a surface area of 100π square centimeters

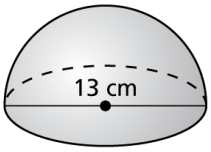
5. the diameter of a sphere with a surface area of 6.25π square inches

In Exercises 6–8, find the volume of the sphere or hemisphere.

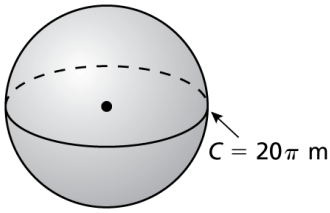
6.



7.



8.



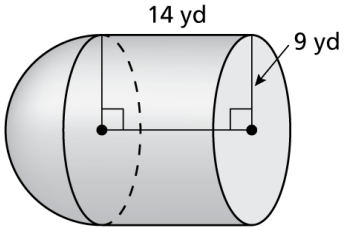
In Exercises 9 and 10, find the volume of the sphere with the given surface area.

9. Surface Area $= 144\pi$ ft^2

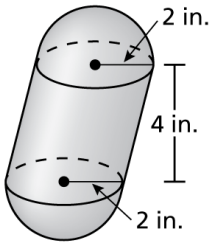
10. Surface Area $= \pi$ mi^2

In Exercises 11 and 12, find the volume of the composite solid.

11.



12.



13. The diameter of a spherical balloon shrinks to one-half of its original size. Describe how the surface area and volume of the balloon change.

14. A museum has two spherical cannonballs on display. Each cannonball is made of a type of iron that weighs about 463 pounds per cubic foot.

a. The diameter of the smaller cannonball is 1 inch less than the diameter of the larger cannonball. Can you determine how much less the smaller cannonball weighs than the larger cannonball? Explain your reasoning.

b. The smaller cannonball displaces 33.5 cubic inches of water when dropped in a bucket full of water. To the nearest pound, how much less does the smaller cannonball weigh than the larger cannonball?