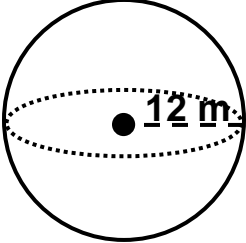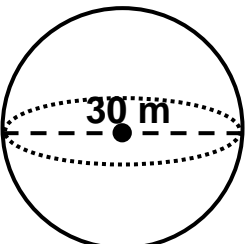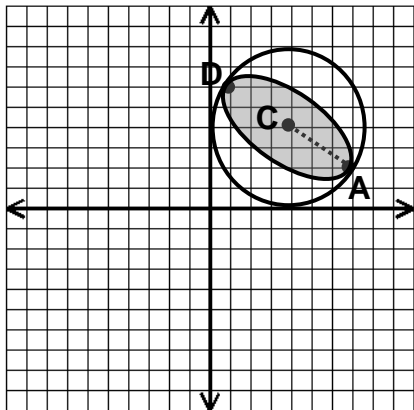NAME_____DATE_____PER._____

REVIEW #18: SPHERES, COMPOSITE FIGURES, & CHANGING DIMENSIONS

PART 1: SURFACE AREA & VOLUME OF SPHERES

Find the measure(s) indicated. Answers to even numbered problems should be rounded to the nearest thousandth.

1. SA = _____ V = _____	12 m
2. SA = _____ V = _____	30 m
3. _____	The Volume of a sphere is 36π cubic units. Find the length of the radius.
4. _____	The Surface Area of a sphere is 64π square units. Find the length of its radius.
5. _____	The circumference of a great circle of a sphere is 44π. Find the Surface Area of the sphere.

Refer to the sphere graphed on the coordinate plane below to answer the following questions.

6. _____

What is the equation of the line that is perpendicular to the radius of the great circle shown and goes through the center of the sphere?
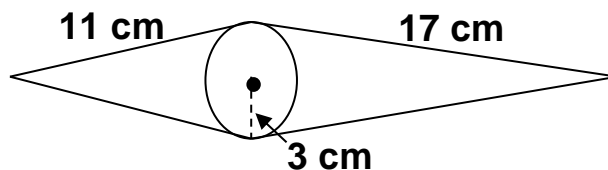
7. _____

What is the volume of the sphere rounded to the nearest thousandth?

PART 2: COMPOSITE FIGURES

Find the measure(s) indicated.
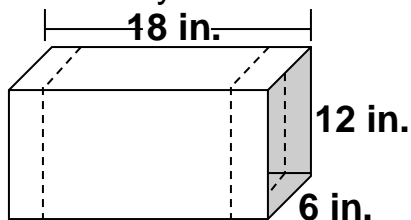
8. _____
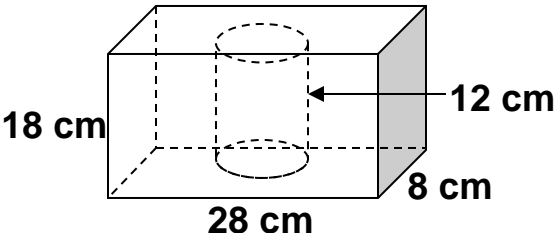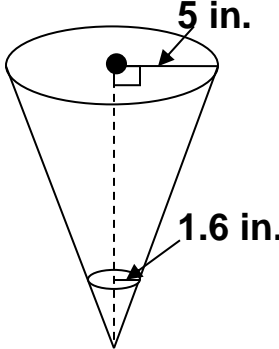
Determine the surface area of the composite figure to the nearest tenth. The figure is two right cones with a common base.

11 cm   **17 cm**

3 cm

9. _____

Three inches around both ends of the box will be cut and folded to form the top and bottom. Determine the volume of the box. Round to the nearest tenth if necessary.

18 in.

12 in.

6 in.

10. _____	To the nearest cubic centimeter, determine the volume of packing peanuts needed to fill the box if the radius of the enclosed cylinder is 4 centimeters and the cylinder is centered in the box. **18 cm** **12 cm** **8 cm** **28 cm**
11. _____	There is a cone-shaped plug in the bottom of a cone. If the height of the plug is 5 inches and the height of the cone is 16 inches, determine the amount of liquid that the cone will hold. Round to the nearest tenth, if necessary. **5 in.** **1.6 in.**

PART 3: CHANGING DIMENSIONS
Answer each problem as indicated.

12. _____	The Volume of a cylinder is 80π mm^3. If the height is increased to one-and-a-half times its original length, what is its new Volume?
13. _____	If the dimensions of a cylinder are increased to three times their original length, by what factor would the volume be affected?

14. _____	The Volume of a cone is 96π cm^3. If its dimensions are reduced to one-half their original length, by what factor would the volume be affected?
15. _____	The Volume of a cone is 48π cubic units. If its radius is reduced to one-half its original length and the height is tripled, what would its new volume be?

PART 4: SPHERICAL GEOMETRY

Answer the following questions as true or false. If false explain why.

16. _____	A line segment on a sphere is an arc of a great circle.
17. _____	Lines on a sphere intersect at only one point.
18. _____	There are no perpendicular lines on a sphere.
19. _____	The sum of the angle measures in a spherical triangle is less than 180°.
20. _____	In spherical geometry if you know the measures of two angles of a triangle, you can determine the measure of the third angle.
21. _____	In spherical geometry two points determine a line.

PART 5: SOLIDS OF REVOLUTION

22. _____	Find the area and perimeter of the region formed by the lines y = 2x, y = 8, and x = 0.
23. _____	What is the surface area of the figure formed by revolving the region described in problem 22 around the y-axis?
24. _____	Name the figure created by revolving the region formed by the lines $Y = \sqrt{(36 - x^2)}$ and y = 0 around the x-axis.
25. _____	What is the volume of the 3-D figure described in problem 24?
26. _____	What is the area and perimeter of the region formed by the lines y = 2, y = 6, x = -4, and x = 5.
27. _____	What is the volume of the figure formed by revolving the region described in problem 26 around the x-axis?