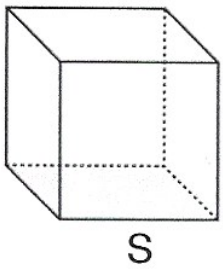
Swhite Geometry mailing 3

Surface Area and Volume

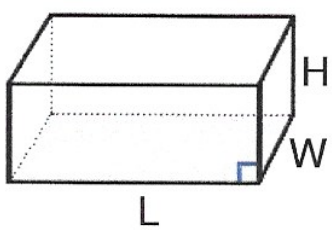
Cube



Surface Area = $6S^2$

Volume = S^3

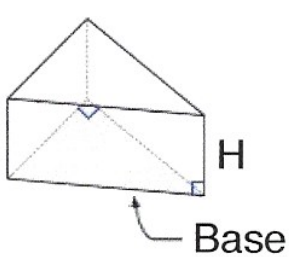
Rectangular Prism



Surface Area = 2LW + 2HW + 2LH

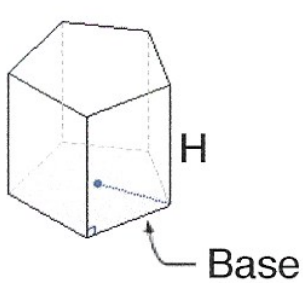
Volume = LWH

General Prisms



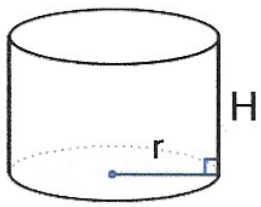
Surface Area = Sum of the areas of the faces.

Volume = Area of base times height.



Surface Area and Volume

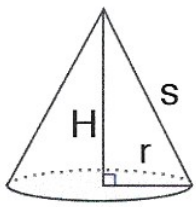
Right Circular Cylinder



Surface Area $= (2\pi r^2) + (\pi 2r H)$

Volume $= \pi r^2 H$

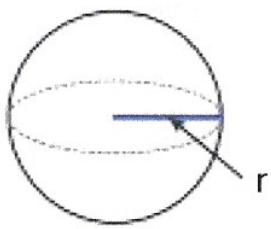
Right Circular Cone



Surface Area $= (\pi r s) + (\pi r^2)$

Volume $= \frac{1}{3} \pi r^2 H$

Sphere



Surface Area $= 4 \pi r^2$

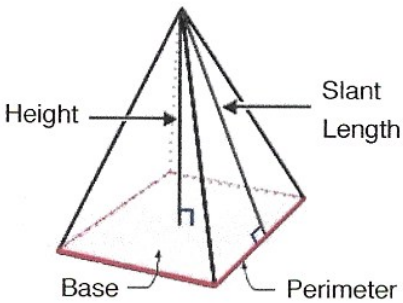
Volume $= \frac{4}{3} \pi r^3$

Surface Area and Volume

Types of Pyramids

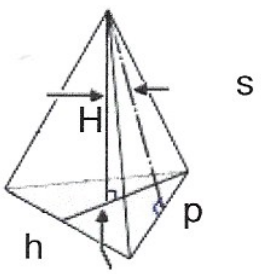
There are many types of Pyramids, and they are named after the shape of their base.

The general equations for Surface Area and Volume of Pyramids when all side faces are the same:



$$\text{Surface Area} = [\text{Base Area}] + \frac{\text{Perimeter}}{2} \times [\text{Slant Length}]$$

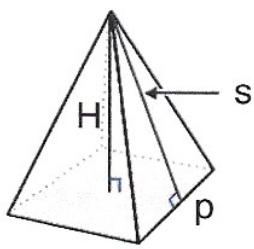
$$\text{Volume} = \frac{1}{3} \times [\text{Base Area}] \times \text{Height}$$



Triangular Pyramid - Triangle Base

$$\text{Surface Area} = \frac{1}{2} p\,h + \frac{3}{2} p\,s$$

$$\text{Volume} = \frac{1}{6} p\,h\,H$$



Square Pyramid - Square Base

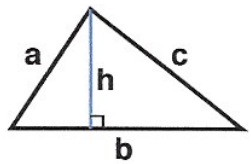
$$\text{Surface Area} = p^2 + 2p\,s$$

$$\text{Volume} = \frac{1}{3} p^2 H$$

Area and Perimeter Formulas

Triangles - Common

A polygon with three angles and three sides.

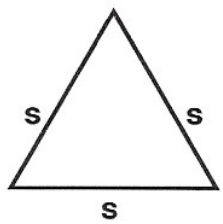


Area $= \frac{1}{2}$ base x height $= \frac{1}{2}$ bh

Perimeter $= a + b + c$

Equilateral Triangles

A Triangle with all three sides of equal length.

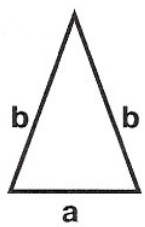


Area $= \frac{\sqrt{3}}{4} \times (\text{side})^2 = \frac{\sqrt{3}}{4} s^2$

Perimeter $= 3 \times \text{sides} = 3s$

Isosceles Triangles

A Triangle with two sides of equal length.

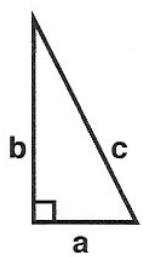


Area $= \frac{a}{4}\sqrt{4b^2 - a^2}$

Perimeter $= a + 2b$

Right Triangles

A Triangle with one right angle.

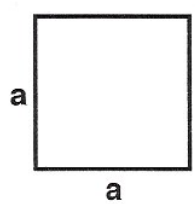


Area $= \frac{ba}{2}$

Perimeter $= a + b + c$

Square

A Square is a quadrilateral with four equal sides and angles at 90°.

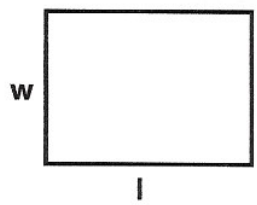


Area $= a^2$

Perimeter $= 4a$

Area and Perimeter Formulas

Rectangle

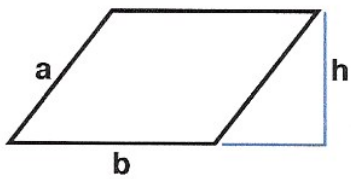


A Rectangle is a quadrilateral with four equal angles at 90°.

Area = lw

Perimeter = 2(w + l)

Parallelogram

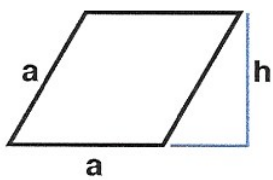


A Parallelogram is a quadrilateral with opposite sides parallel.

Area = bh

Perimeter = 2(a + b)

Rhombus

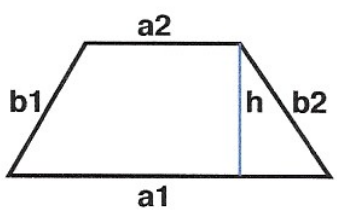


A Rhombus is a Parallelogram with all sides equal.

Area = ah

Perimeter = 4a

Trapezoid

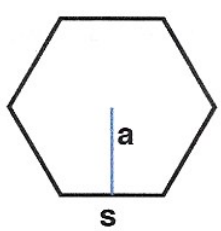


A Trapezoid is a Quadrilateral with at least one pair of parallel sides.

Area = $\frac{a1 + a2}{2}$ h

Perimeter = a1 + a2 + b1 + b2

Regular n-gon



A Regular Polygon is a polygon for which n sides and angles are equal.

Area = $\frac{1}{2}$ (a n s)

Perimeter = n s

Name : _____ Score : _____

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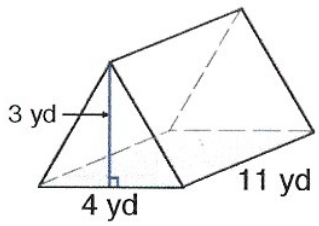
Set 3 Lesson 1 page 1

Volume of Prisms and Cylinders

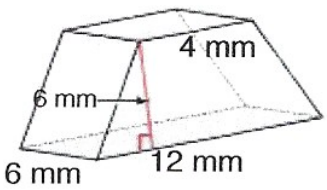
Find the volume for each figure. Round your answers to the nearest hundredth, if necessary.

1)



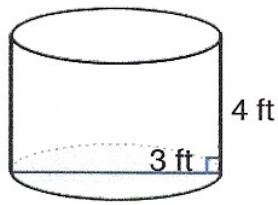
Volume: _____

2)



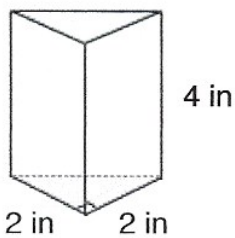
Volume: _____

3)



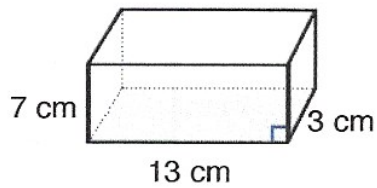
Volume: _____

4)



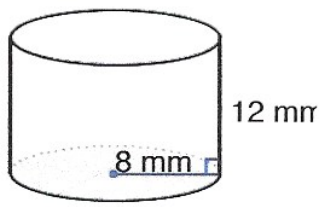
Volume: _____

5)



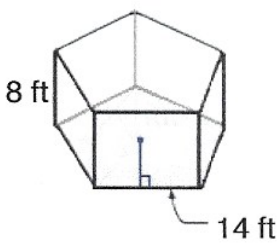
Volume: _____

6)



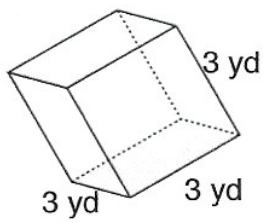
Volume: _____

7)



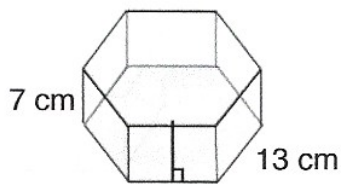
Volume: _____

8)



Volume: _____

9)



Volume: _____

Name : _____ Score : _____

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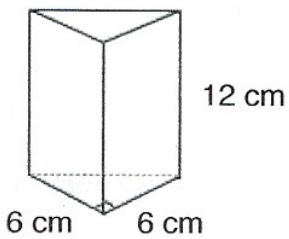
Set 3 lesson 1 page 2

Surface Area of Prisms and Cylinders

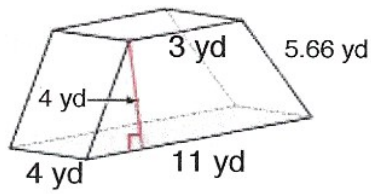
Find the surface area of each figure. Round answers to the nearest hundredth, if necessary.

1)



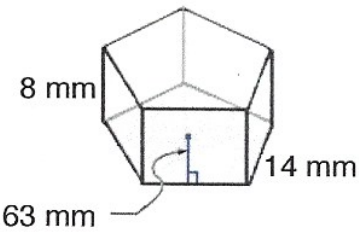
Surface Area: _____

2)



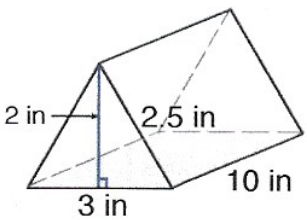
Surface Area: _____

3)



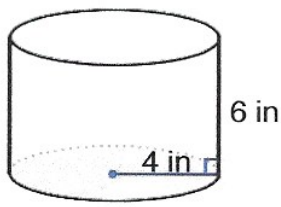
Surface Area: _____

4)



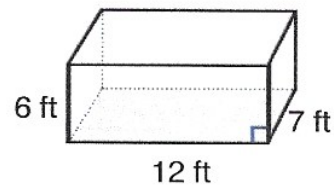
Surface Area: _____

5)



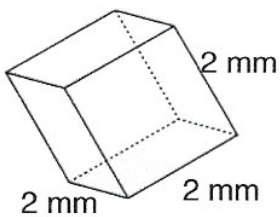
Surface Area: _____

6)



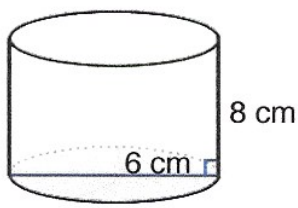
Surface Area: _____

7)



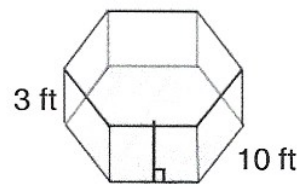
Surface Area: _____

8)



Surface Area: _____

9)



Surface Area: _____

Name : _____ Score : _____

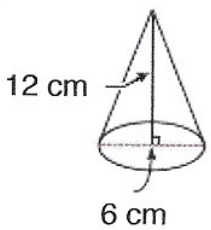
Teacher : _____ Date : _____

Set 3 lesson 2 page 1

Volume of Pyramids and Cones

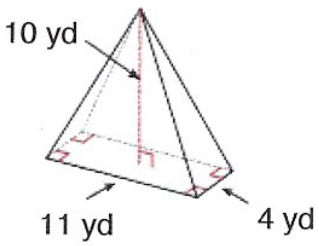
Find the volume of each figure. Round answers to the nearest hundredth, if necessary.

1)



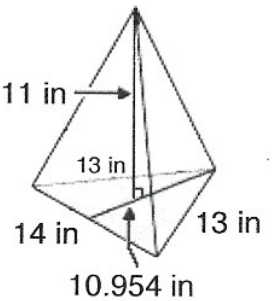
Volume: _____

2)



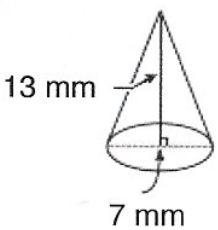
Volume: _____

3)



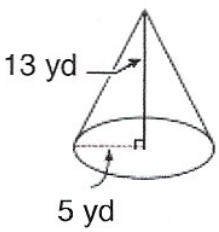
Volume: _____

4)



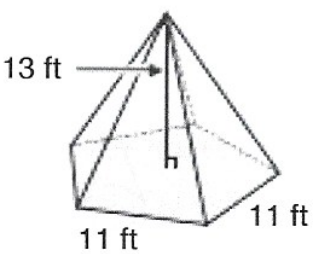
Volume: _____

5)



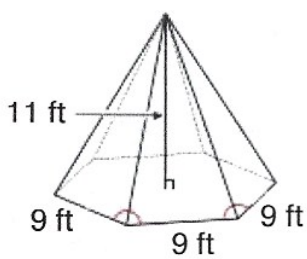
Volume: _____

6)



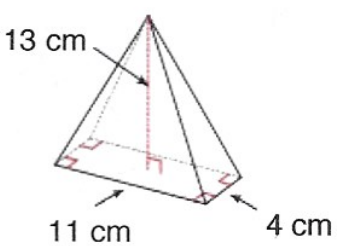
Volume: _____

7)



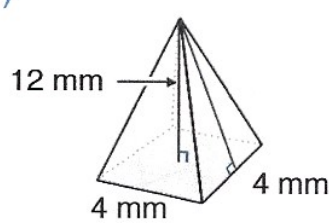
Volume: _____

8)



Volume: _____

9)



Volume: _____

Name : _____ Score : _____

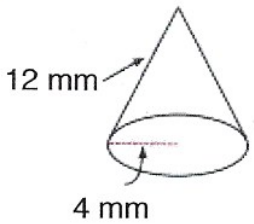
Teacher : _____ Date : _____

Set 3 lesson 2 page 2

Surface Area of Pyramids and Cones

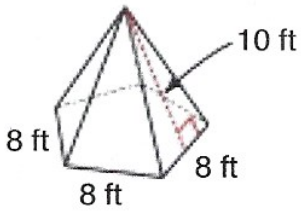
Find the surface area of each figure. Round answers to the nearest hundredth, if necessary.

1)



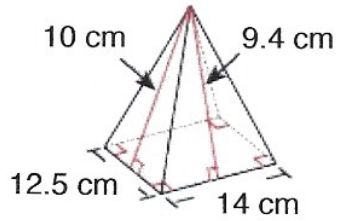
Surface Area: _____

2)



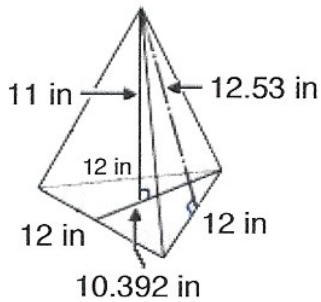
Surface Area: _____

3)



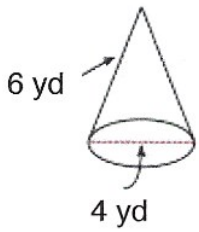
Surface Area: _____

4)



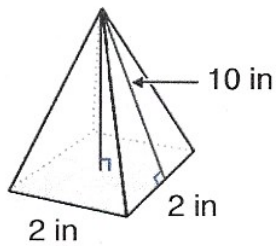
Surface Area: _____

5)



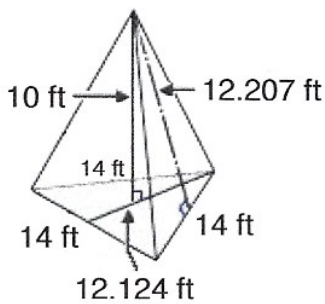
Surface Area: _____

6)



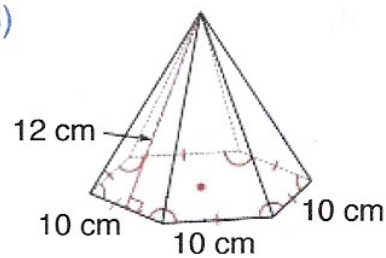
Surface Area: _____

7)



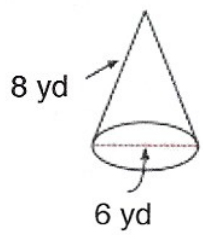
Surface Area: _____

8)



Surface Area: _____

9)



Surface Area: _____

Name : _____ Score : _____

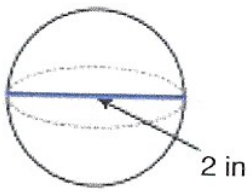
Teacher : _____ Date : _____

Set 3 lesson 3

Surface Area of Spheres

Use 3.1416 for pi. Round answers to the nearest hundredth, if necessary.

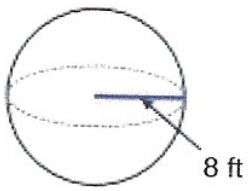
1)



Surface Area: _____

Volume: _____

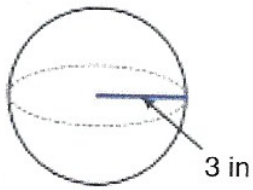
2)



Surface Area: _____

Volume: _____

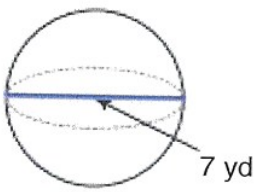
3)



Surface Area: _____

Volume: _____

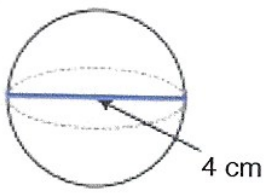
4)



Surface Area: _____

Volume: _____

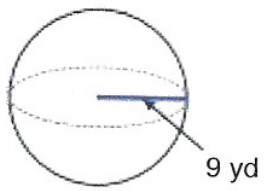
5)



Surface Area: _____

Volume: _____

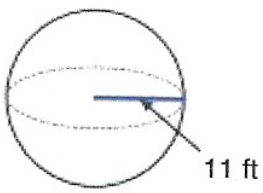
6)



Surface Area: _____

Volume: _____

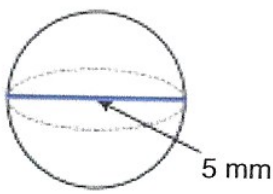
7)



Surface Area: _____

Volume: _____

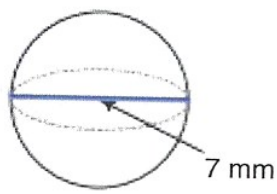
8)



Surface Area: _____

Volume: _____

9)



Surface Area: _____

Volume: _____