# Unit 12 Surface Area and Volume Guided Notes Name: \_\_\_\_\_ Per:\_\_\_\_

### Day 1 – Volume of Prisms

**Objective:** SWBAT Find the Volume of Prisms

Volume of a Solid

#### Volume of a Prism:

Base: (B)

Height of PRISM: (h)

Formula:

#### What are the bases of the following prisms?







### <u>Name the shape of the base of each of the following shapes, and then find the Volume of the following prisms.</u>

2.



15 in 6 in 8 in

Base:	
-------	--

<b>Base:</b>		

V:\_\_\_\_\_

V: \_\_\_\_\_













**6.** Find the volume in terms of *x*.







**8.** What is the height of a cube that has a volume of  $1331 ft^3$ ?

#### Day 2 – Volume of Cylinders

**Objective:** SWBAT Find the Volume of cylinders

**Cylinder:** 

**Bases:** 

**Lateral Faces:** 

Formula for Volume of a Cylinder:

#### Find the Volume of the following:



6. You have to pick between two cylindrical containers, which has the greater volume?

**Cylinder A**: r = 6m and h = 13m

**Cylinder B**: r = 8m and h = 7.5m

- **7.** Find the height of a cylinder that has a volume of 5024 in<sup>3</sup>, and a diameter of 16 in.
- **8.** Find the radius of a right cylinder with a volume of 25.12 cm<sup>3</sup>, and a height of 8cm.

#### Day 3 – Volume of Pyramids Objective: SWBAT Find the Volume of Pyramids

**Pyramid** 

**Base** 

**Lateral Faces** 

**Height** 

**Slant Height** 

Lateral Edge

Regular Pyramid

Formula for Volume of a Pyramid

#### What are the bases of the following prisms?











#### Find the Volume of the Regular Pyramids.



**5.** What is the height of a square pyramid that has a side length of 12 *feet* and a volume of 240  $ft^3$  ?

**6.** Assuming that both sunscreen bottles are regular pyramids, find the following.



#### Day 4 - Volume of Cones

**Objective:** SWBAT Find the Volume of Cones

#### Cone

2.

**Base** 

**Slant Height** 

**Height** 

Formula for Volume of a Cone:

Find the Volume of the following solids. 1.





4. Write an expression for the Volume





5. A food manufacturer sells yogurt in cone shaped cups with the dimensions shown. To the nearest tenth, how many fluid ounces of yogurt does the cup hold? (Hint:  $1 cm^3 \approx 0.034 fl oz$ )

#### Day 5 - Surface Area of Prism

**Objective:** SWBAT Find the lateral areas and surface areas of Prisms

Bases

Prism

Lateral Faces

Lateral Area

**Surface Area** 

**Naming Structure** 

Formula of the Surface Area of a Right Prism

#### What are the bases of the following prisms?











## Identify the base of the following prisms, name them, and find the surface area.



-	-
Name of the Prism:	Name of the Prism:

Surface Area: \_\_\_\_\_

3.

Shape of the Base





Shane of the Base

Shape of the Base: \_\_\_\_\_

Name of the Prism: \_\_\_\_\_



Name of the Prism: \_\_\_\_\_





Shape of the Base: \_\_\_\_\_

Name of the Prism: \_\_\_\_\_

Shape of the Base: \_\_\_\_\_

Name of the Prism: \_\_\_\_\_

Surface Area: \_\_\_\_\_

Surface Area Expression: \_\_\_\_\_

**Day 6 - Surface Area of Cylinder Objective:** SWBAT Find the surface areas of cylinders

**Cylinder** 

**Bases** 

**Lateral Faces** 

Lateral Area

Formula for Surface Area of a Cylinder

6.

#### Find the Total Surface Area of the following:



**5.** Find the height of a cylinder which has a radius of 6.5 centimeters and a surface area of 592.19 square centimeters

**6.** You want to design a cylindrical container for oatmeal. You want the height of the container to be 2 times the radius. Write an expression for the surface area of this cylinder.

**7.** The surface area of a cylinder is 226.2 in<sup>2</sup>. If the cylinder has a radius of 4 in and a height of 5 in, what is the lateral area of the cylinder?

#### Day 7 – Surface Area of Pyramid

**Objective:** SWBAT Find the lateral areas and surface areas of Pyramids

#### **Pyramid**

**Base** 

Lateral Faces

<u>Height</u>

**Slant Height** 

Lateral Edge

<u>Regular Pyramid</u>

Formula for Surface Area of a Pyramid

What are the bases of the following prisms?







4 in

#### Find the Surface Area for each Pyramid.









# **Day 8 – Surface Area of Cones Objective:** SWBAT Find the lateral areas and surface areas of Cones

2.

#### Cone

**Base** 

**Slant Height** 

**Height** 

Formula for Surface Area of a Cone













#### 5. Write an expression for the Surface Area



6. A cone has a surface area of  $77\pi$  mm<sup>2</sup>. What is the radius of the cone if the slant height is 4 mm long?

#### **Day 9 – Surface Area and Volume of Spheres Objective:** SWBAT Find the Surface Area and Volume of Spheres

#### Sphere:

Center of a Sphere:

**Radius of a Sphere:** 

**Diameter of a Sphere:** 

Chord:

**Great Circle of a Sphere:** 

**Surface Area of a Sphere:** 

Volume of a Sphere:



#### **Examples: Find the Surface Area and Volume of the following Spheres**



7. Find the Surface Area of a Sphere that has a volume of  $36\pi$  m<sup>3</sup>.

Day 10 – Surface Area and Volume of Composite Figures Objective: SWBAT Find the Surface Area and Volume of Composite Figures

**Composite Figures:** 

Finding the Surface Area:

**Bases** 

Lateral Area

#### Finding the Volume:

1.

Describe the shapes of the following composite solids.



#### Find the Surface Area and Volume of the following figures.





2.

Find the Volume of the following figures.





4.