## **Determining Volume Part 1**

There are three steps to determining the volume of Prisms, Cylinders, Pyramids, and Cones, depending on the figure you have:

Volume of Prisms and Cylinders				Volume of Pyramids and Cones			
Triangular Prism	Rectangular Prism	Cylinder		Triangular Pyramid	Rectangular Pyramid	Cone	
Step 1: Find the	Step 1: Find the	Step 1: Find the		Step 1: Find the	Step 1: Find the	Step 1: Find the	
base area.	base area.	base area.		base area.	base area.	base area.	
$A = \frac{bh}{2}$	A = bh	$A = \pi r^2$		$A = \frac{bh}{2}$	A = bh	$A = \pi r^2$	
Multiply the base	Multiply the base	Multiply the		Multiply the base	Multiply the base	Multiply the	
length and base	length by the base	radius length by		length and base	length by the base	radius length by	
height, then divide	height.	itself, then		height, then divide	height.	itself, then	
by 2.		multiply by $\pi$ .		by 2.	_	multiply by $\pi$ .	
<b>Step 2:</b> Identify the figure height ( <i>H</i> ).				<b>Step 2:</b> Identify the figure height ( <i>H</i> ).			
<b>Step 3:</b> Multiply the answer from Step 1 by Step 2. (V = AH)				<b>Step 3:</b> Multiply the answer from Step 1 by Step 2, then divide that by 3. $\left(V = \frac{AH}{3}\right)$			

## Evaluate. For cylinders and cones, leave your answer in terms of pi.

1. Determine the volume of a rectangular <b>prism</b> that has a	2. Determine the volume of a rectangular <b><u>pyramid</u></b> that has a
base length of 9 in, a base height of 4 in and a height of 10 in.	base length of 9 in, a base height of 4 in and a height of 10 in.
Step 1: Base Area	Step 1: Base Area
Stop 2: Height	Stop 2: Hoight
Step 2: neight	Step 2. Height
Step 3: Volume	Step 3: Volume
Step 5. Volume	Step 5. Volume
3 Determine the volume of a <b>cone</b> that has a radius of 12 in	4 Determine the volume of a <b>cylinder</b> that has a radius of 12
3. Determine the volume of a <b>cone</b> that has a <b>radius</b> of 12 in and a <b>height</b> of 7 in	4. Determine the volume of a <b>cylinder</b> that has a radius of 12 in and a <b>height</b> of 7 in
3. Determine the volume of a <b>cone</b> that has a radius of 12 in and a <b>height</b> of 7 in.	4. Determine the volume of a <b>cylinder</b> that has a radius of 12 in and a <b>height</b> of 7 in.
<ul> <li>3. Determine the volume of a cone that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> </ul>	<ul> <li>4. Determine the volume of a cylinder that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> </ul>
<ul> <li>3. Determine the volume of a cone that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> </ul>	<ul> <li>4. Determine the volume of a cylinder that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> </ul>
<ul> <li>3. Determine the volume of a cone that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> </ul>	<ul> <li>4. Determine the volume of a cylinder that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> </ul>
3. Determine the volume of a <b><u>cone</u></b> that has a radius of 12 in and a <u><b>height</b></u> of 7 in. Step 1: Base Area	<ul> <li>4. Determine the volume of a <u>cylinder</u> that has a radius of 12 in and a <u>height</u> of 7 in.</li> <li>Step 1: Base Area</li> </ul>
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<ul> <li>3. Determine the volume of a cone that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> </ul>	<ul> <li>4. Determine the volume of a cylinder that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> </ul>
<ul> <li>3. Determine the volume of a cone that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> </ul>	<ul> <li>4. Determine the volume of a cylinder that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> </ul>
3. Determine the volume of a <u>cone</u> that has a radius of 12 in and a <u>height of 7 in.</u> Step 1: Base Area         Step 2: Height	<ul> <li>4. Determine the volume of a cylinder that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> </ul>
<ul> <li>3. Determine the volume of a cone that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> <li>Step 3: Volume</li> </ul>	<ul> <li>4. Determine the volume of a cylinder that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> <li>Step 3: Volume</li> </ul>
<ul> <li>3. Determine the volume of a cone that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> <li>Step 3: Volume</li> </ul>	<ul> <li>4. Determine the volume of a cylinder that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> <li>Step 3: Volume</li> </ul>
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<ul> <li>3. Determine the volume of a cone that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> <li>Step 3: Volume</li> </ul>	<ul> <li>4. Determine the volume of a cylinder that has a radius of 12 in and a height of 7 in.</li> <li>Step 1: Base Area</li> <li>Step 2: Height</li> <li>Step 3: Volume</li> </ul>

				Name:		Per:		
5. Determine the vo	lume of a triangular <b>p</b>	<b>yramid</b> that has a	6. Determine the volume of a triangular <b>prism</b> that has a					
base length of 7cm, a base height of 6cm and a <u>height</u> of 4cm.			b	base length of 7cm, a base height of 6cm and a <b>height</b> of 4cm.				
Step 1: Base Area				Step 1: Base Area				
Stop 2. Hoight				Stop 2. Hoight				
Step 2. Height				Step 2: Height				
Step 3: Volume				Sten 3: Volume				
step 5: volume				Step 5. Volume				
7. Determine the vo	lume of a cone that ha	as a height of 3 cm	8	<ol><li>Determine the vo</li></ol>	lume of a cylinder tha	at has a height of 3		
and a radius of 10 cm.			C	cm and a radius of 10 cm.				
Step 1: Base Area				Step 1: Base Area				
Step 2: Height				Step 2: Height				
			Step 21 Holghe					
Step 3: Volume				Step 3: Volume				
9. Determine the vo	lume of a cylinder tha	it has a radius of 8 in	1	.0. Determine the v	olume of a cone that I	has a radius of 8 in		
Stop 1. Page Area			a	Stop 1: Page Area				
Step 1: base Area				Step 1: base Area				
Step 2: Height				Step 2: Height				
Step 3: Volume				Step 3: Volume				
11 Determine the				2 Determine the	- l	+ +		
11. Determine the v	olume of a square pyr	ramid that has a		12. Determine the volume of a square prism that has a base length of 12 in and a height of 5 in				
(hint hase &	and a neight of 5 m.	re the samel)	10	(hint: hase & height on a square are the same!)				
Step 1: Base Area				Step 1: Base Area				
Step 1. Dase Mea			Step 1. Dase mea					
Step 2: Height				Step 2: Height				
Step 3: Volume			Step 3: Volume					
	Determining Volume Part 1 Answers							
1. S1: $A = 36 in^2$ ;	2. S1: $A = 36 in^2$ ;	3. S1: $A = 144\pi in^2$ ;	4	A. S1: $A = 144\pi i n^2$ ;	5. S1: $A = 21 \ cm^2$ ;	6. S1: $A = 21 \ cm^2$ ;		
S2: $H = 10$ in;	S2: $H = 10$ in; S2: $V = 120$ is $3^{3}$	S2: $H = 7$ in; S2: $V = 226 - \frac{1}{2}$	S	2: H = 7 in;	S2: $H = 4 cm$ ;	S2: $H = 4 cm$ ;		
$53: v = 360 \ ln^3$ 7 S1: $A = 100\pi \ cm^2$ :	$53: v = 120 \ ln^3$ 8 S1: A = 100 \pi cm^2:	$53: v = 336\pi \ln^3$ 9 S1: $A = 64\pi \ln^2$	1	$\frac{5 \cdot v = 1008\pi \ln^3}{0 \text{ S1} \cdot A = 64\pi \ln^2}$	$53: v = 28 \ cm^3$ 11 S1: $A = 144 \ in^2$ .	$53: v = 84 \ cm^3$ 12 S1: $A = 144 \ in^2$ .		
S2: H = 3 cm;	$S_{2}: H = 3 cm;$	S2: H = 6 in;	S	2: H = 6 in;	S2: H = 5 in;	S2: H = 5 in;		
S3: $V = 100\pi \ cm^3$	S3: $V = 300\pi \ cm^3$	S3: $V = 384\pi in^3$	S	3: $V = 128\pi in^3$	S3: $V = 240 in^3$	S3: $V = 720 in^3$		