Name: _____ Per: ____

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

Triangular Prism	Rectangular Prism	Cylinder
Step 1: Find the base area. $A = \frac{bh}{2}$ *Multiply the base length and base height, then divide by 2.*	**Step 1:** Find the base area. $A = bh$ *Multiply the base length by the base height.*	**Step 1:** Find the base area. $A = \pi r^2$ *Multiply the radius length by itself, then multiply by π.*
Step 2: Identify the figure height (H).		
Step 3: Multiply the answer from Step 1 by Step 2. $(V = AH)$		

Volume of Pyramids and Cones

Triangular Pyramid	Rectangular Pyramid	Cone
Step 1: Find the base area. $A = \frac{bh}{2}$ *Multiply the base length and base height, then divide by 2.*	**Step 1:** Find the base area. $A = bh$ *Multiply the base length by the base height.*	**Step 1:** Find the base area. $A = \pi r^2$ *Multiply the radius length by itself, then multiply by π.*
Step 2: Identify the figure height (H).		
Step 3: 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 **prism** that has a base length of 9 in, a base height of 4 in and a **height** of 10 in.

Step 1: Base Area
Step 2: Height
Step 3: Volume

2. Determine the volume of a rectangular **pyramid** that has a base length of 9 in, a base height of 4 in and a **height** of 10 in.

Step 1: Base Area
Step 2: Height
Step 3: Volume

3. Determine the volume of a **cone** that has a radius of 12 in and a **height** of 7 in.

Step 1: Base Area
Step 2: Height
Step 3: Volume

4. Determine the volume of a **cylinder** that has a radius of 12 in and a **height** of 7 in.

Step 1: Base Area
Step 2: Height
Step 3: Volume

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5. Determine the volume of a triangular **pyramid** that has a base length of 7cm, a base height of 6cm and a **height** of 4cm.

Step 1: Base Area
Step 2: Height
Step 3: Volume

6. Determine the volume of a triangular **prism** that has a base length of 7cm, a base height of 6cm and a **height** of 4cm.

Step 1: Base Area
Step 2: Height
Step 3: Volume

7. Determine the volume of a cone that has a height of 3 cm and a radius of 10 cm.

Step 1: Base Area
Step 2: Height
Step 3: Volume

8. Determine the volume of a cylinder that has a height of 3 cm and a radius of 10 cm.

Step 1: Base Area
Step 2: Height
Step 3: Volume

9. Determine the volume of a cylinder that has a radius of 8 in and a height of 6 in.

Step 1: Base Area
Step 2: Height
Step 3: Volume

10. Determine the volume of a cone that has a radius of 8 in and a height of 6 in.

Step 1: Base Area
Step 2: Height
Step 3: Volume

11. Determine the volume of a square pyramid that has a base length of 12 in and a height of 5 in.
(hint: base & height on a square are the same!)

Step 1: Base Area
Step 2: Height
Step 3: Volume

12. Determine the volume of a square prism that has a base length of 12 in and a height of 5 in.
(hint: base & height on a square are the same!)

Step 1: Base Area
Step 2: Height
Step 3: Volume

Determining Volume Part 1 Answers

1. S1: $A = 36\ in^2$; S2: $H = 10\ in$; S3: $V = 360\ in^3$	2. S1: $A = 36\ in^2$; S2: $H = 10\ in$; S3: $V = 120\ in^3$	3. S1: $A = 144\pi\ in^2$; S2: $H = 7\ in$; S3: $V = 336\pi\ in^3$	4. S1: $A = 144\pi\ in^2$; S2: $H = 7\ in$; S3: $V = 1008\pi\ in^3$	5. S1: $A = 21\ cm^2$; S2: $H = 4\ cm$; S3: $V = 28\ cm^3$	6. S1: $A = 21\ cm^2$; S2: $H = 4\ cm$; S3: $V = 84\ cm^3$
7. S1: $A = 100\pi\ cm^2$; S2: $H = 3\ cm$; S3: $V = 100\pi\ cm^3$	8. S1: $A = 100\pi\ cm^2$; S2: $H = 3\ cm$; S3: $V = 300\pi\ cm^3$	9. S1: $A = 64\pi\ in^2$; S2: $H = 6\ in$; S3: $V = 384\pi\ in^3$	10. S1: $A = 64\pi\ in^2$; S2: $H = 6\ in$; S3: $V = 128\pi\ in^3$	11. S1: $A = 144\ in^2$; S2: $H = 5\ in$; S3: $V = 240\ in^3$	12. S1: $A = 144\ in^2$; S2: $H = 5\ in$; S3: $V = 720\ in^3$