Name: _____ Per: ____

Using Volume to Determine Parts

If you are given the volume, you can solve for parts on the figure by doing the volume process backwards.

Cubes (Square Prisms) $V = (bh)H$	**Cylinders** $V = \pi r^2 H$	**Square Pyramids** $V = \frac{(bh)H}{3}$	**Cones** $V = \frac{\pi r^2 H}{3}$
Step 3 in reverse: Divide by the figure's height. **Step 2 in reverse:** Identify the base area. **Step 1 in reverse:** Since the base is a square, square root to determine the base length.	**Step 3 in reverse:** Divide by the figure's height. **Step 2 in reverse:** Identify the base area. **Step 1 in reverse:** Since the base is a circle, divide out π, then square root to determine the radius.	**Step 3 in reverse:** Multiply by 3, then divide by the figure's height. **Step 2 in reverse:** Identify the base area. **Step 1 in reverse:** Since the base is a square, square root to determine the base length.	**Step 3 in reverse:** Multiply by 3, then divide by the figure's height. **Step 2 in reverse:** Identify the base area. **Step 1 in reverse:** Since the base is a circle, divide out π, then square root to determine the radius.

Evaluate.

1. A cone has a volume of $336\pi\ in^3$. Determine the length of the radius, if the height is 7 *in*.	2. A cube (square prism) has a volume of 80 cm^3. Determine the base length, if the height is 5 *cm*.	3. A cylinder has a volume of $384\pi\ in^3$. Determine the length of the radius, if the height is 6 *in*.
4. A cube (square prism) has a volume of 1500 in^3. Determine the base height, if the height is 15 *in*.	5. A square pyramid has a volume of 48 in^3. Determine the base length, if the height is 4 *in*.	6. A cone has a volume of $100\pi\ cm$. Determine the length of the radius, if the height is 3 *cm*.

Name: _____ Per: ____

7. A cylinder has a volume of $5\pi\ cm^3$. Determine the length of the radius, if the height is 5 *cm*.	8. A cube (square prism) has a volume of 720 in^3. Determine the base length if the height is 5 *in*.	9. A square pyramid has a volume of 4 in^3. Determine the base height, if the height is 3 *in*.
10. A cylinder has a volume of $160\pi\ cm^3$. Determine the length of the radius, if the height is 10 *cm*.	11. A cone has a volume of $20\pi\ in^3$. Determine the length of the radius, if the height is 15 *in*.	12. A square pyramid has a volume of 128 cm^3. Determine the base length, if the height is 6.
13. A cylinder has a volume of $175\pi\ in^3$. Determine the length of the radius, if the height is 7 *in*.	14. A cone has a volume of $15\pi\ cm^3$. Determine the length of the radius, if the height is 5 *cm*.	15. A cylinder has a volume of $810\pi\ cm$. Determine the length of the radius, if the height is 10 *cm*.

Using Volume to Determine Parts Answers

1. $r = 12\ in$	2. $b = 4\ cm$	3. $r = 8\ in$	4. $h = 10\ in$	5. $b = 6\ in$
6. $r = 10\ cm$	7. $r = 1\ cm$	8. $b = 12\ in$	9. $h = 2\ in$	10. $r = 4\ cm$
11. $r = 2\ in$	12. $b = 8\ cm$	13. $r = 5\ in$	14. $r = 3\ cm$	15. $r = 9\ cm$