4.5 Classwork: Volume of cylinders, cones, pyramids, spheres

1	Find	the vo	lume of	a rectangular	nrism	with	length 2	cm	width 5	cm	and	height 3	R cm
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2.	Find the volume of a pyramid $(V = \frac{1}{3}Bh)$ having a height of 11.3 inches and with a
	square base having side lengths of 7 inches. Express your result to the nearest cubic
	inch.

3. Find the volume of a sphere with a radius of 30 inches, to the nearest whole cubic inch. (The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$)

- 4. A waffle cone has a radius of 2 inches and height of 4 inches.
 - (a) Write down the general formula for the volume of a cone.
 - (b) Find the volume of the waffle cone.

- 5. A given sphere has a radius of 6 inches.
 - (a) Write down the general formula for the volume of a sphere, using r to represent the radius.
 - (b) Find the volume of the sphere, to the nearest whole cubic inch.

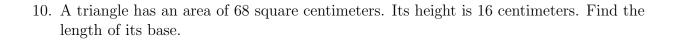
- 6. The volume of a sphere is $(121\frac{1}{2})\pi$. Find its radius.
- 7. A pyramid with a square base has a volume of 576 cubic inches. Its height is the same as the lengths of the sides of the base. Find the area of its base.

Given the volume formula $V = \frac{1}{3}(s^2)h$ for a pyramid with a square base $(B = s^2)$.

- (a) Write down the variable representing the height
- (b) Write down the variable representing the length of the base's side
- (c) Write an equation relating the two variables in (a) and (b)
- (d) Substitute and solve

$$V = \frac{1}{3}(s^2)h$$

- 8. A waffle cone has a radius of 2 inches and height of 4 inches.
 - (a) Write down the general formula for the volume of a cone.
 - (b) Find the volume of the waffle cone.
- 9. A given sphere has a radius of 6 inches.
 - (a) Write down the general formula for the volume of a sphere, using r to represent the radius.
 - (b) Find the volume of the sphere, to the nearest whole cubic inch.



11. The perimeter of a square is 10 inches. Find its area.

- 12. A pyramid with a square base has a volume of 576 cubic inches. Its height is the same as the lengths of the sides of the base. Find the area of its base.
- 13. A sphere has a radius of 5 centimeters.

CCSSM.8.G.C.9

- (a) Write down the general formula for the volume of a sphere.
- (b) Find the volume of the sphere, rounded to the nearest cubic centimeter.

14. A cylinder is 12.3 cm tall and has a volume of 966 cubic cm. Find the area of the base of the cylinder. Express your result to the nearest hundredth of a square centimeter.

Model the situation with an equation.

Do NOT solve!

- 15. A large concrete post in the shape of a cylinder has a volume of 250 cubic feet. Its height is 12 feet. Find the radius of the base of the post.
- 16. A spherical cork fishing net float has a volume of 4000 cubic centimeters. Find its radius.
- 17. The volume of a cone having a **diameter** of 10 inches is 200 cubic inches. Find the cone's height.
- 18. A sphere has a radius of 9 centimeters.

CCSSM.8.G.C.9

- (a) Write down the general formula for the volume of a sphere.
- (b) Find the volume of the sphere, rounded to the nearest cubic centimeter.

19. A cylinder is 12.3 cm tall and has a volume of 966 cubic cm. Find the area of the base of the cylinder. Express your result to the nearest hundredth of a square centimeter.