Math 8

<u>Our Goal</u>: To learn to find the volume of a cylinder

<u>Warm Up</u>: Test discussion

<u>Today's participation measures</u>
· Handout 8.1 Practice
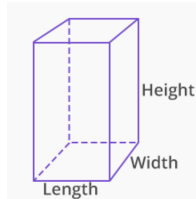· Correct any test mistakes on a separate sheet of paper for partial credit

<u>Previous Homework</u>
None

Essential Question

How can you find the <u>volume</u> of a <u>prism</u>?

Volume is a measure of how much something could hold

$$V = (L \cdot W)H$$
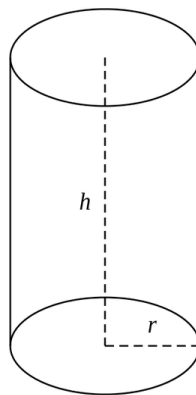
Volume equals area of the base times height

$$V = BH$$

Essential Question
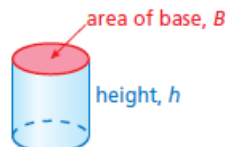
How can you find the volume of a cylinder?

$V = Bh$

$V = \pi r^2 h$

🔑 Key Idea

Volume of a Cylinder

Words The volume V of a cylinder is the product of the area of the base and the height of the cylinder.

Algebra $V = Bh$

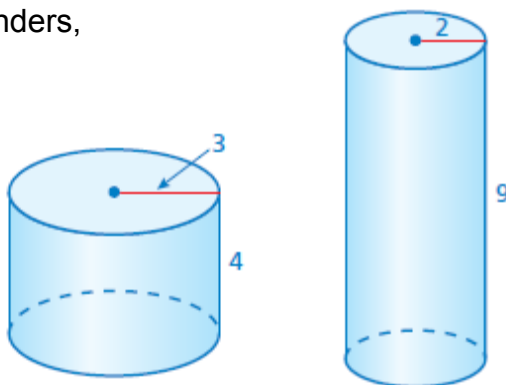Area of base ⟶ ⟵ Height of cylinder
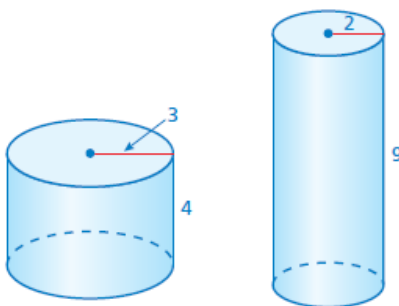
area of base, B

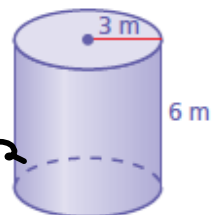height, h

Work with a partner.

a. Just by looking at the two cylinders, which one do you think has the greater volume? Explain your reasoning.

b. Find the volume of each cylinder. Was your prediction in part (a) correct? Explain your reasoning.
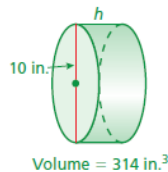
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Find the volume of the cylinder. Round your answer to the nearest tenth.

3 m

6 m

$$V = \pi r^2 h = \pi 3^2 \cdot 6 = 3^2$$

$$54\pi = 169.6 m^3$$

.

Find the height of the cylinder. Round your answer to the nearest whole number.

h

10 in.

Volume = 314 in.^{3}
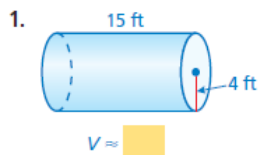
$$V = \pi R^2 h$$

$$314 = \pi 5^2 h$$

$$\frac{314}{25\pi} = \frac{\pi 25 h}{25\pi}$$

$$\cancel{314 \div 25 \times \pi}$$

$$314 \div (25 \times \pi)$$

$$314 \div 25 \div \pi$$

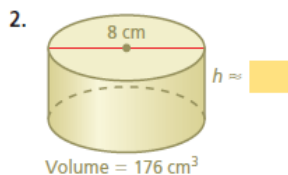**Find the volume *V* or height *h* of the cylinder. Round your answer to the nearest tenth.**

1.

15 ft

4 ft

$V \approx$ ▨

2.

8 cm

$h \approx$ ▨

Volume = 176 cm³

$V = \pi r^2 \cdot h$

$V = 1$

$V = \pi 4^2 \cdot 15$

$V = \pi \, 16 \cdot 15$

754.0

$176 = \pi 4^2 \cdot h$

$176 = 16\pi \cdot h$

$\dfrac{16.1}{}$

$3.5 =$

4

How much salsa is missing from the jar?

5 cm

MILD   MILD

Garden
Fresh

Chunky

SALSA

MILD

NET WT. 16 OZ.

10 cm

4 cm

About how many gallons of water does the watercooler bottle contain? (1 ft³ ≈ 7.5 gal)

Ⓐ 5.3 gallons   Ⓑ 10 gallons   Ⓒ 17 gallons   Ⓓ 40 gallons

1.7 ft

1 ft

Find the volume of the cylinder. Round your answer to the nearest tenth.

1.
3 in.
6 in.

2.
10 ft
16 ft

3.
6 m
18 m

4.
8 in.
12 in.