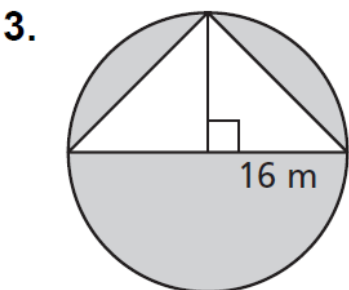
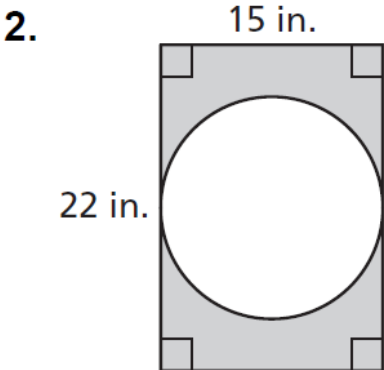
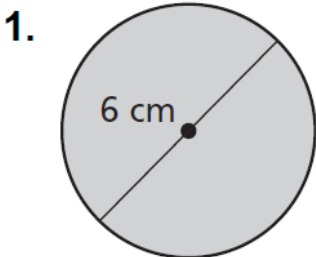


Find the area of the shaded region.



Find an equation of the line.

1. parallel to the line $y = 2x + 3$, passes through the point $(0, -8)$

2. parallel to the line $y = x$, passes through the point $(-2, 7)$

3. perpendicular to the line $y = -5x - 7$, passes through the point $(-1, -3)$

Essential Question

How can you find the surface area and the volume of a cone?

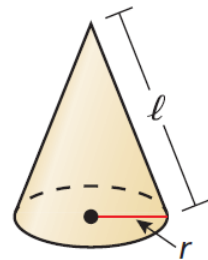
Core Concept

Surface Area of a Right Cone

The surface area S of a right cone is

$$S = \pi r^2 + \pi r \ell$$

where r is the radius of the base and ℓ is the slant height.



Circle
(Base)

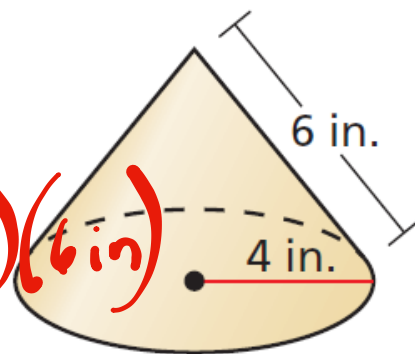
lateral area

Find the surface area of the right cone.

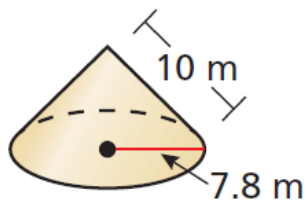
$$S = \pi r^2 + \pi r l$$

$$S = \pi (4\text{ in})^2 + \pi (4\text{ in})(6\text{ in})$$

$$S = 125.6 \text{ in}^2$$



1. Find the surface area of the right cone.



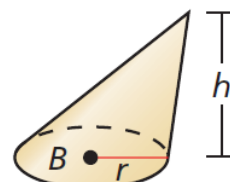
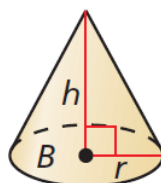
Core Concept

Volume of a Cone

The volume V of a cone is

$$V = \frac{1}{3}Bh = \frac{1}{3}\pi r^2h$$

where B is the area of a base, h is the height, and r is the radius of the base.

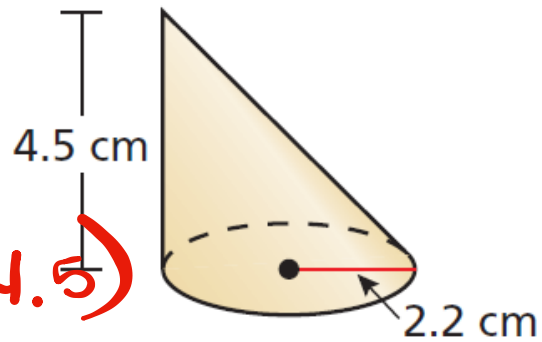


Find the volume of the cone.

$$V = \frac{1}{3} Bh$$

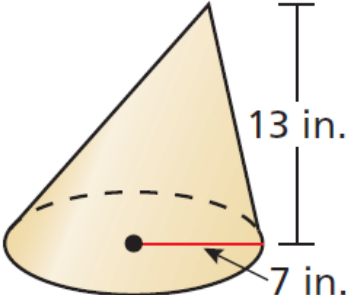
$$V = \left(\frac{1}{3}\right) \left(\pi (2.2)^2\right) (4.5)$$

$$V = 22.8 \text{ cm}^3$$

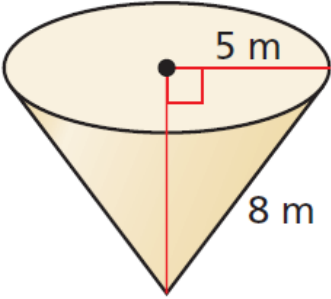


Find the volume of the cone.

2.



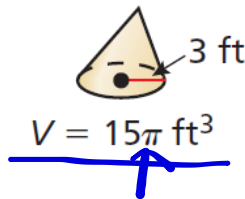
3.



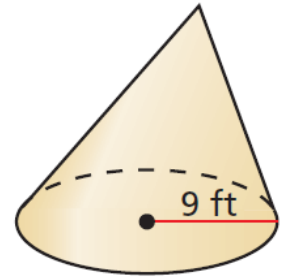
Cone A and cone B are similar

Find the volume of cone B.

Cone A



Cone B



$$\frac{C_A}{C_B}$$

$\times^1 3 : 9$
 $\times^2 9 : 81$
 $\times^3 27 : 729$

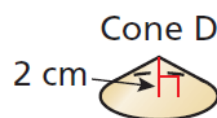
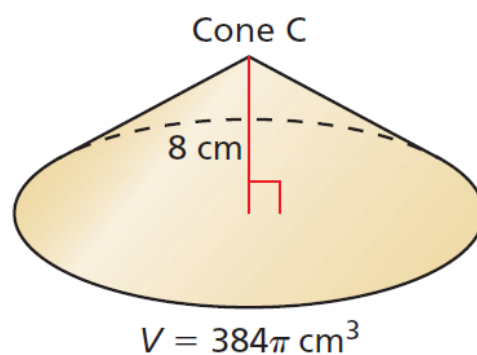
$\sqrt{81}$
 $\sqrt[3]{729}$

$$\frac{15\pi}{V_B} = \frac{27}{729}$$

$$V_B = \frac{15\pi \cdot 729}{27} = 1272.3 \text{ ft}^3$$

$$405\pi \text{ ft}^3$$

4. Cone C and cone D are similar. Find the volume of cone D.

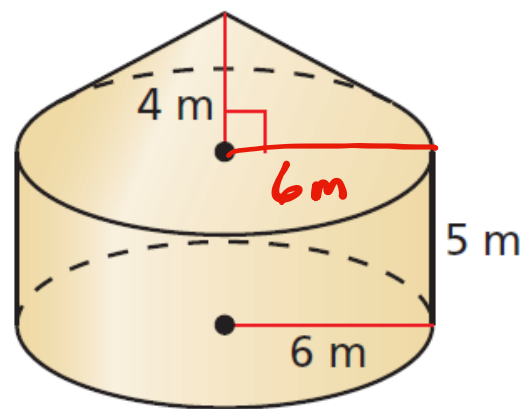


Find the volume of the composite solid.

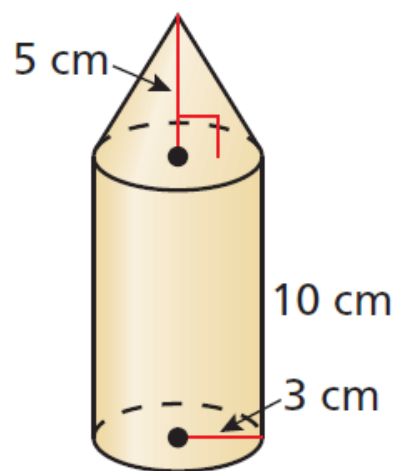
$$V_{\text{cylinder}} = (\pi 36\text{m}^2)(5\text{m})$$

$$V_{\text{cone}} = \frac{1}{3}(\pi 36\text{m}^2)(4\text{m})$$

$$\begin{aligned} V_{\text{solid}} &= 228\pi\text{m}^3 \\ &= 716.3\text{m}^3 \end{aligned}$$



5. Find the volume of the composite solid.



- **Exit Ticket:** Find the surface area and volume of a cone with a diameter of 8 centimeters and height of 3 centimeters.