

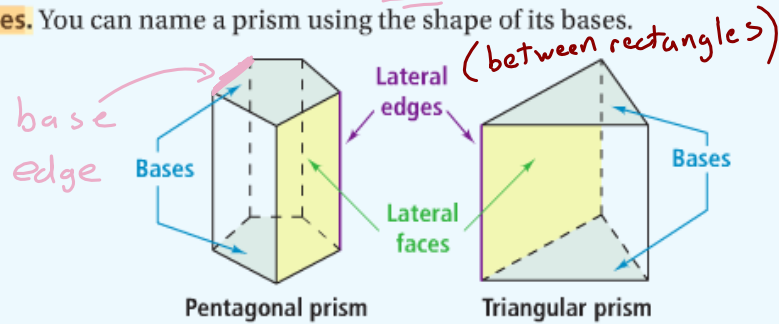
Geometry

Chapter 11

Section 11-2, 11-4

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A **prism** is a polyhedron with two congruent, parallel faces, called **bases**. The other faces are **lateral faces**. You can name a prism using the shape of its bases.



An **altitude** of a prism is a perpendicular segment that joins the planes of the bases. The **height h** of a prism is the length of an altitude. A prism may either be right or oblique.



****Note: Assume a right prism unless drawn or stated otherwise**

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LA = Lateral Area

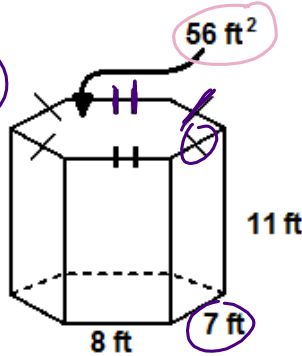
SA = Surface Area

Area of all the lateral surface
between parallel bases

Area of the entire
surface of a 3D figure

$$LA = 4(7 \cdot 11) + 2(8 \cdot 11)$$

$$= 484 \text{ ft}^2$$

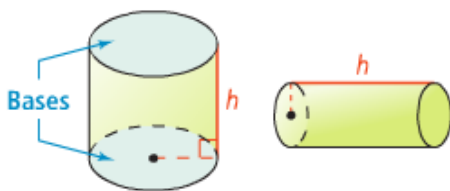


$$SA = 2(56) + 484$$

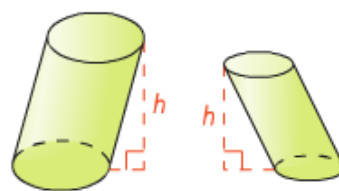
$$= 596 \text{ ft}^2$$

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A **cylinder** is a solid that has two congruent parallel **bases** that are circles. An **altitude** of a cylinder is a perpendicular segment that joins the planes of the bases. The **height** h of a cylinder is the length of an altitude.

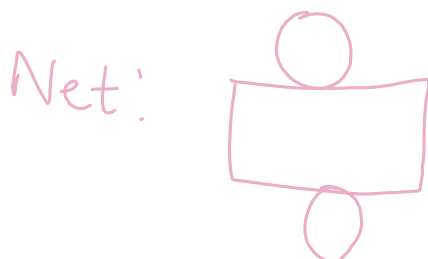


Right cylinders



Oblique cylinders

****Note:**
★ Assume a right cylinder unless drawn or stated otherwise



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Take note

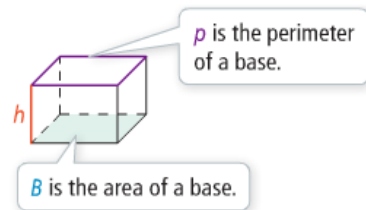
Theorem 11-1 Lateral and Surface Areas of a Prism

The lateral area of a right prism is the product of the perimeter of the base and the height of the prism.

$$L.A. = ph$$

The surface area of a right prism is the sum of the lateral area and the areas of the two bases.

$$S.A. = L.A. + 2B$$



Theorem 11-2 Lateral and Surface Areas of a Cylinder

The lateral area of a right cylinder is the product of the circumference of the base and the height of the cylinder.

$$L.A. = 2\pi r \cdot h, \text{ or } L.A. = c \cdot h$$

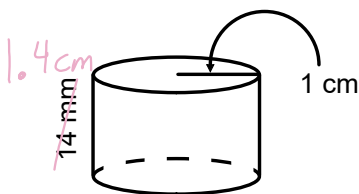
The surface area of a right cylinder is the sum of the lateral area and the areas of the two bases.

$$S.A. = L.A. + 2B \text{ or } S.A. = 2\pi rh + 2\pi r^2$$



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Find the lateral area and surface area of the figures.



$$L.A. = 2\pi r \cdot h$$

$$2\pi(1) \cdot 1.4$$

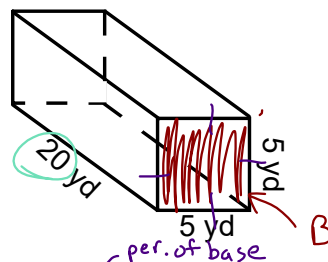
$$= 2.8\pi \text{ cm}^2$$

$$S.A. = L.A. + 2B$$

$$2.8\pi + 2\pi(1)^2$$

$$2.8\pi + 2\pi$$

$$= 4.8\pi \text{ cm}^2$$



$$L.A. = p \cdot h$$

$$= 4(5)(20)$$

$$L.A. = 400 \text{ yd}^2$$

$$S.A. = L.A. + 2B$$

$$400 + 2(5^2)$$

$$= 450 \text{ yd}^2$$

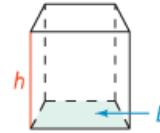
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take note

Theorem 11-6 Volume of a Prism

The volume of a prism is the product of the area of the base and the height of the prism.

$$V = Bh$$

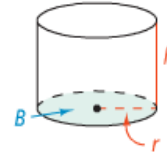


take note

Theorem 11-7 Volume of a Cylinder

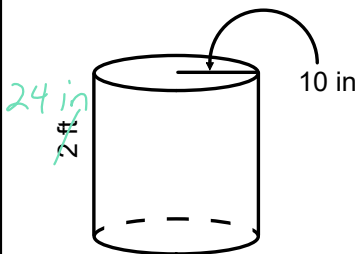
The volume of a cylinder is the product of the area of the base and the height of the cylinder.

$$V = Bh \text{ or } V = \pi r^2 h$$



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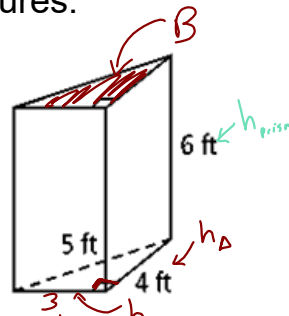
Find the volume of the figures.



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

$$\pi(10)^2(24)$$

$$V = 2400\pi \text{ in}^3$$



$$V = Bh$$

$$B = \frac{1}{2}bh_{\Delta}$$

$$= \frac{1}{2}(3)(4)$$

$$= 6$$

$$V = B \cdot h_{\text{prism}}$$

$$V = 6 \cdot 6$$

$$V = 36 \text{ ft}^3$$

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Homework

Pages 704 - 705

11, 15 - 23 odd

Pages 721 - 722

6 -18 even

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