

$$20. \quad d^2 = l^2 + w^2 + h^2$$

$$(8)^2 = x^2 + x^2 + x^2$$

$$\frac{64}{3} = \frac{3x^2}{3}$$

$$\sqrt{21.3} = \sqrt{x^2}$$

$$x = 4.6 \text{ cm}$$

$$14. \quad (0, 0, 0) + (3, 7, -6)$$

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2}$$

$$= \sqrt{(0 - 3)^2 + (0 - 7)^2 + (0 - (-6))^2}$$

$$= \sqrt{9 + 49 + 36}$$

$$= \sqrt{58.36}$$

$$= 7.6 \text{ km}$$

$$\begin{array}{l} 0 - 3 + \\ 0 - 7 + \\ 0 - (-6) \end{array}$$

## 10.4 Surface area of prisms & cylinders

lateral face: Face that is not the base.

lateral edge: edge that isn't the edge of a base

right prism: prism where all lateral faces are rectangles

oblique prism: prism where at least 1 lateral face isn't a rectangle.

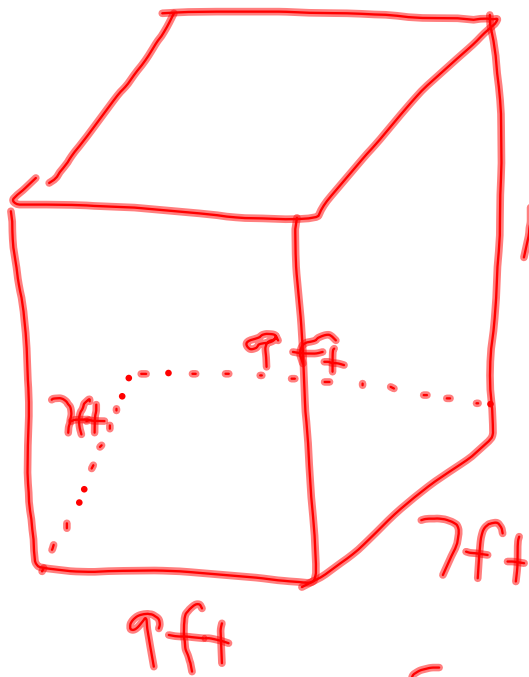
altitude: height of a 3D figure.

surface area: area of all the lateral faces and the area of the bases.

## rt. rectangular prisms

The lateral area,  $L$ , of a rt. prism with base perimeter  $P$  and height  $h$  is  $L = Ph$

The surface area of a rt. prism with lateral Area,  $L$ , and base area  $B$  is  $S = L + 2B$



Surface area

$$L = Ph$$

$$P = 9 + 9 + 7 + 7 = 32$$

$$h = 14$$

$$L = 32(14) = 448 \text{ ft}^2$$

$$S = L + 2B$$

$$S = 448 + 2(63)$$

$$= 574 \text{ ft}^2$$

$$\begin{aligned} B &= l \cdot w \\ &= 9 \cdot 7 \\ &= 63 \end{aligned}$$

Lateral area of a cylinder with radius  $r$  + height  $h$  is  $L = 2\pi r h$

Surface area of a cylinder with lateral area  $L$  and base area  $B$  is  $S = L + 2B$



Find the surface area.

$$\begin{aligned} L &= 2\pi r h \\ &= 2\pi (8)(10) \\ &= 160\pi \text{ m}^2 \end{aligned}$$

$$S = L + 2B$$

$$\begin{aligned} S &= 160\pi + 2(64\pi) & B &= \pi r^2 \\ & & &= \pi (8)^2 \\ & & &= 64\pi \end{aligned}$$

$$S = 160\pi + 128\pi$$

$$S = 288\pi \text{ m}^2$$

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rect. prism

$$L = Ph$$

$$= 265$$

$$= 130 \text{ cm}^2$$

$$S = L + 2B$$

$$S = 130 + 2(9 \times 4)$$

$$S = 202 \text{ m}^2$$

$$202 - \pi(2)^2$$

$$202 - 4\pi$$

$$202 - 12.57$$

$$189.43 \text{ cm}^2$$

cylinder

$$L = 2\pi rh$$

$$= 2\pi(2)(3)$$

$$= 12\pi$$

$$S = L + B$$

$$= 12\pi + 4\pi$$

$$= 16\pi$$

Total area

$$189.43 + 16\pi$$

$$239.7 \text{ cm}^2$$

P. 684 2-22 even  
odds extra credit  
#10 of 22 find the surface  
area