

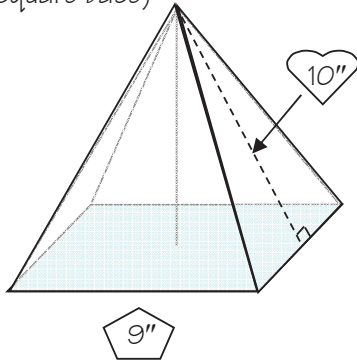
Surface Area of Pyramids

$$L = \frac{1}{2}Pl \quad \text{or} \quad L = \frac{Pl}{2}$$

$$S = L + B$$

Find the **lateral** and **total** surface area of each of the following:

1. (square base)



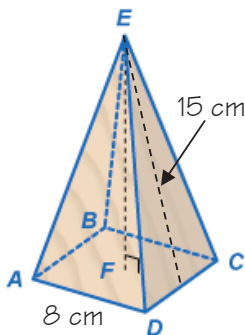
Perimeter of base: $P = 4 \cdot \text{[pentagon]} \text{ in.} = \text{[triangle]} \text{ in.}$

$$L = \frac{\text{[triangle]} \cdot \text{[heart]} }{2} = \text{[rectangle]} \text{ in}^2$$

Area of base: $B = \text{[pentagon]}^2 = \text{[cloud]} \text{ in}^2$

$$S = \text{[rectangle]} + \text{[cloud]} = \text{[rectangle]} \text{ in}^2$$

2. (square base)



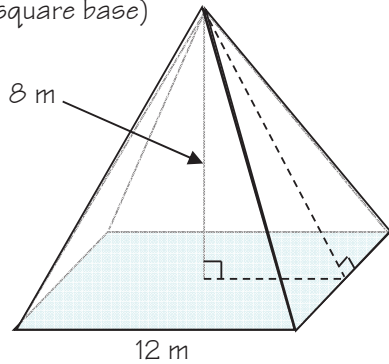
Perimeter of base: $P = 4 \cdot \text{[line]} \text{ cm} = \text{[line]} \text{ cm}$

$$L = \frac{\text{[line]} \cdot \text{[line]} }{2} = \text{[line]} \text{ cm}^2$$

Area of base: $B = \text{[line]}^2 = \text{[line]} \text{ cm}^2$

$$S = \text{[line]} + \text{[line]} = \text{[line]} \text{ cm}^2$$

3. (square base)



Perimeter of base: $P = 4 \cdot \text{[line]} \text{ m} = \text{[line]} \text{ m}$

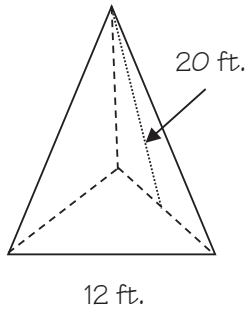
Slant height: $l = \sqrt{\text{[line]}^2 + \text{[line]}^2} = \text{[line]} \text{ m}$

$$L = \frac{\text{[line]} \cdot \text{[line]} }{2} = \text{[line]} \text{ m}^2$$

Area of base: $B = \text{[line]}^2 = \text{[line]} \text{ m}^2$

$$S = \text{[line]} + \text{[line]} = \text{[line]} \text{ m}^2$$

4. (equilateral triangle base)



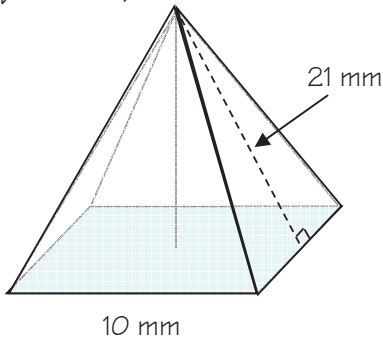
Perimeter of base: $P = 3 \cdot \underline{\hspace{2cm}} \text{ ft} = \underline{\hspace{2cm}} \text{ ft}$

$$L = \frac{\underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}}}{2} = \underline{\hspace{2cm}} \text{ ft}^2$$

$$\text{Area of base: } B = \frac{\underline{\hspace{2cm}}^2 \sqrt{3}}{4} = \underline{\hspace{2cm}} \text{ ft}^2$$

$$S = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} \approx \underline{\hspace{2cm}} \text{ ft}^2$$

5. (square base)



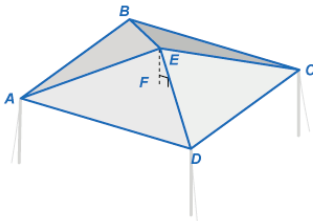
$$P = \underline{\hspace{4cm}}$$

$$L = \underline{\hspace{4cm}}$$

$$B = \underline{\hspace{4cm}}$$

$$S = \underline{\hspace{4cm}}$$

6. A fabric company needs to make a canopy in the shape of a square-based pyramid. Each **side** of the square is 48 feet and the **height** of the canopy should be 7 feet. What is the **lateral** surface area of the pyramid? (You will need to find the **slant height**.)



7. A square-based pyramid has a **lateral** surface area of 72 cm^2 . If the **slant height** is 3 cm, what is the **total** surface area?

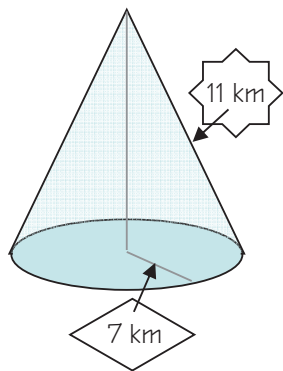
Surface Area of Cones

$$L = \pi r l$$

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

Find the **lateral** and **total** surface area of each cone (leave answers in terms of π):

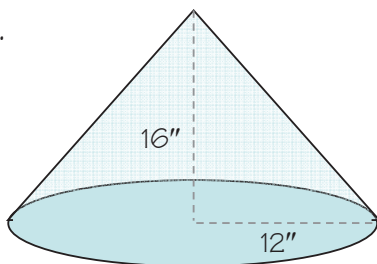
1.



$$L = \pi \cdot \text{[diamond]} \cdot \text{[star]} = \text{[oval]} \text{ km}^2$$

$$S = \text{[oval]} + \pi \cdot \text{[diamond]}^2 = \text{[blank]} \text{ km}^2$$

2.

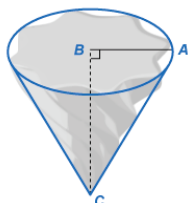


Slant height: $l = \sqrt{\text{[blank]}^2 + \text{[blank]}^2} = \text{[blank]} \text{ in.}$

$$L = \pi \cdot \text{[blank]} \cdot \text{[blank]} = \text{[blank]} \text{ in}^2$$

$$S = \text{[blank]} + \pi \cdot \text{[blank]}^2 = \text{[blank]} \text{ in}^2$$

3.



AB = 3 mm
AC = 10 mm

$$L = \text{[blank]}$$

$$S = \text{[blank]}$$

4. An ice cream cone has a **lateral** area of $24\pi \text{ cm}^2$. If the slant height is 6 cm, what is the radius of the cone?

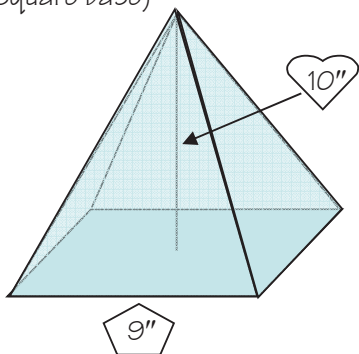
5. Max needed a cone to cover a circle with a **diameter** of 8 feet. If the height of the cone was 3 feet, approximately how much material would he need (**lateral** area)? Round your answer to the nearest foot.

Volume of Pyramids

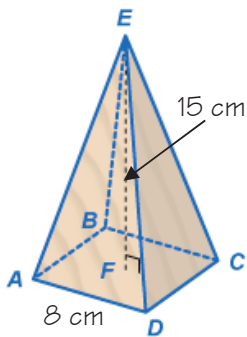
$$V = \frac{1}{3}Bh$$

Find the **volume** of each of the following:

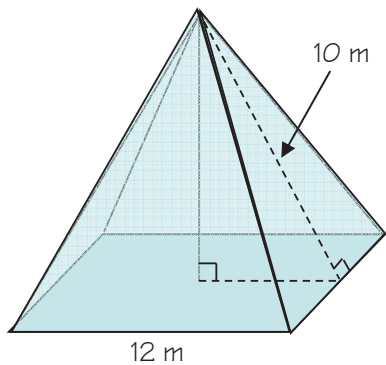
1. (square base)



2. (square base)



3. (square base)



Area of base: $B = \frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times \text{base} \times \text{height} \text{ in}^2$

$V = \frac{1}{3} \cdot \text{Area of base} \cdot \text{height} = \text{_____} \text{ in}^3$

Area of base: $B = \text{_____}^2 = \text{_____} \text{ cm}^2$

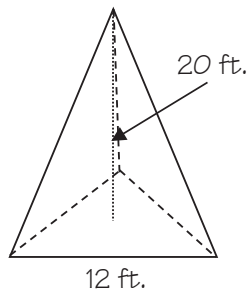
$V = \frac{1}{3} \cdot \text{_____} \cdot \text{_____} = \text{_____} \text{ cm}^3$

Height: $h = \sqrt{\text{_____}^2 - \text{_____}^2} = \text{_____} \text{ m}$

Area of base: $B = \text{_____}^2 = \text{_____} \text{ m}^2$

Volume: $V = \frac{1}{3} \cdot \text{_____} \cdot \text{_____} = \text{_____} \text{ m}^3$

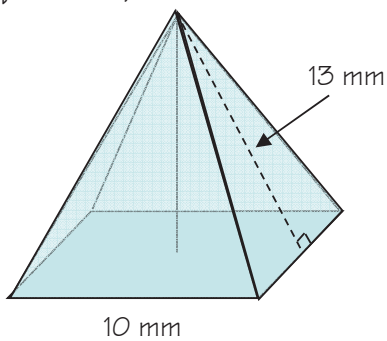
4. (equilateral triangle base)



$$\text{Area of base: } B = \frac{\text{side}^2 \sqrt{3}}{4} = \text{_____ ft}^2$$

$$\text{Volume: } V = \frac{1}{3} \cdot \text{_____} \cdot \text{_____} = \text{_____ ft}^3$$

5. (square base)



$$h = \text{_____}$$

$$B = \text{_____}$$

$$V = \text{_____}$$

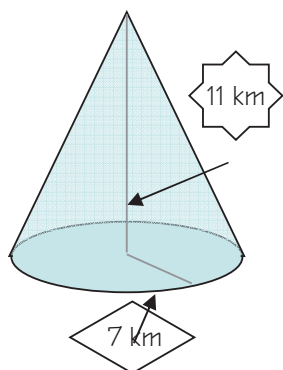
6. A **square**-based pyramid has a **side length** of 10 inches and a **volume** of 3300 in^3 . What is the **height** of the pyramid.

Volume of Cones

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

Find the **volume** of each cone (leave answers in terms of π):

1.

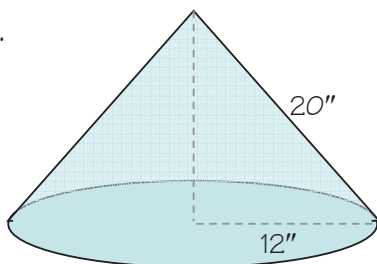


$$V = \frac{1}{3} \cdot \pi \cdot \text{[diamond]}^2 \cdot \text{[height]}$$

$$= \frac{1}{3} \cdot \pi \cdot \text{_____} \cdot \text{_____}$$

$$= \text{_____ km}^3$$

2.

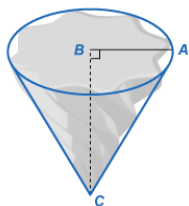


Height: $h = \sqrt{\text{_____}^2 - \text{_____}^2} = \text{_____ in.}$

$$V = \frac{1}{3} \cdot \pi \cdot \text{_____}^2 \cdot \text{_____}$$

$$= \frac{1}{3} \cdot \pi \cdot \text{_____} \cdot \text{_____} = \text{_____ in}^3$$

3.



AB = 3 mm
BC = 10 mm

$V = \text{_____}$

4. An ice cream cone has a **volume** of $24\pi \text{ cm}^3$. If the height is 6 cm, what is the radius of the cone?