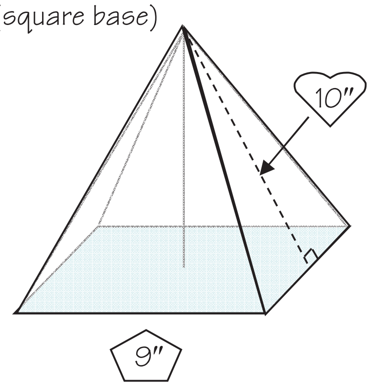
Surface Area of Pyramids

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

$$S = L + B$$

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

1. (square base)



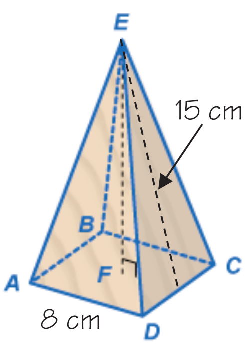
Perimeter of base: P = 4 · ______ in. = ______ in.

$L = \dfrac{\_\_\_\_ \cdot \_\_\_\_}{2}$ = ______ in²

Area of base: B = ______² = ______ in²

S = ______ + ______ = ______ in²

2. (square base)



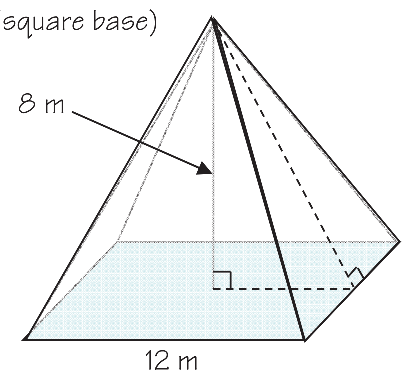
Perimeter of base: P = 4 · ______ cm = ______ cm

$L = \dfrac{\_\_\_\_ \cdot \_\_\_\_}{2}$ = ______ cm²

Area of base: B = ______² = ______ cm²

S = ______ + ______ = ______ cm²

3. (square base)



Perimeter of base: P = 4 · ______ m = ______ m

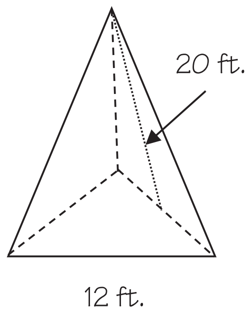
Slant height: $\ell = \sqrt{\_\_\_\_^2 + \_\_\_\_^2}$ = ______ m

$L = \dfrac{\_\_\_\_ \cdot \_\_\_\_}{2}$ = ______ m²

Area of base: B = ______² = ______ m²

S = ______ + ______ = ______ m²

4. (equilateral triangle base)



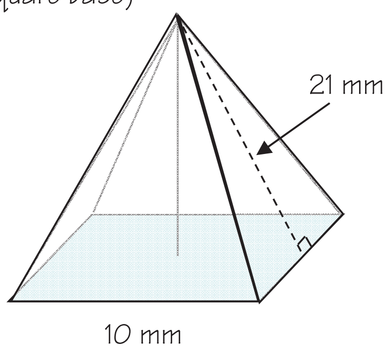
Perimeter of base: P = 3 · _______ ft = ________ ft

L = $\dfrac{\_\_\_\_\_\_\_\_ \bullet \_\_\_\_\_\_\_\_}{2}$ = __________ ft²

Area of base: B = $\dfrac{\_\_\_\_\_\_\_^{2}\sqrt{3}}{4}$ = _________ ft²

S = __________ + __________ ≈ ____________ ft²

5. (square base)



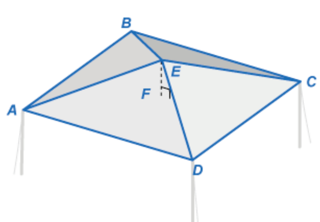
P = ____

L = ____

B = ____

S = ____

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 cm². If the **slant height** is 3 cm, what is the **total** surface area?

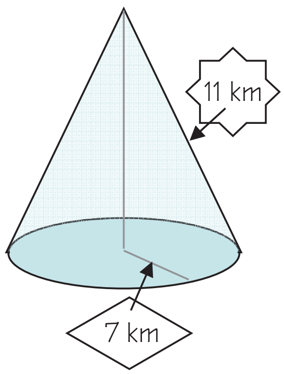
Surface Area of Cones

$L = \pi r \ell$

$S = L + \pi r^2$

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

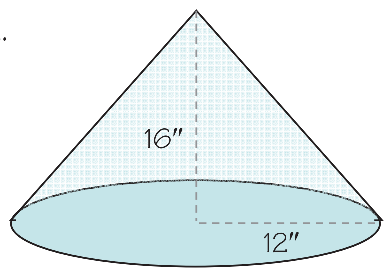
1.



L = π · ______ · ______ = ______ km²

S = ______ + π · ______² = ______ km²

2.

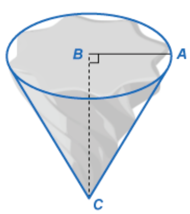


Slant height: $\ell = \sqrt{\_\_\_\_^2 + \_\_\_\_^2}$ = ______ in.

L = π · ______ · ______ = ______ in²

S = ______ + π · ______² = ______ in²

3.



AB = 3 mm
AC = 10 mm

L = ______________________________

S = ______________________________

4. An ice cream cone has a **lateral** area of 24π cm². If the slant height is 6 cm, what is the radius of the cone?

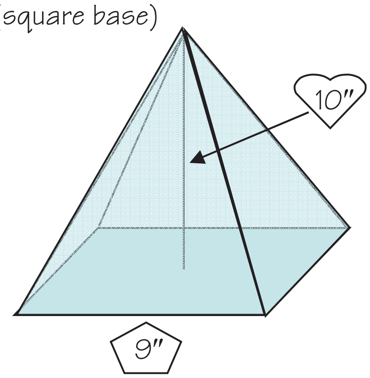
5. Max needed a cone to cover a circle with a **diameter** of 8 feet. If the height of the cone was 3 feet, approximately how much materal would he need (**lateral** area)? Round your answer to the nearest foot.

Volume of Pyramids

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

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

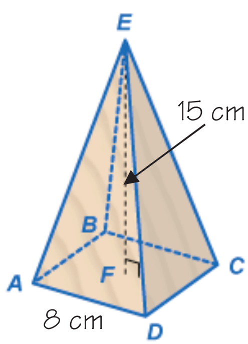
1. (square base)



Area of base: $B =$ ______^{2} = ______ in^2

$V = \frac{1}{3} \bullet$ ______ $\bullet$ ______ = ______ in^3

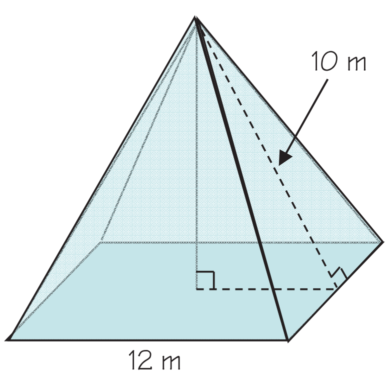
2. (square base)



Area of base: $B =$ ______^{2} = ______ cm^2

$V = \frac{1}{3} \bullet$ ______ $\bullet$ ______ = ______ cm^3

3. (square base)

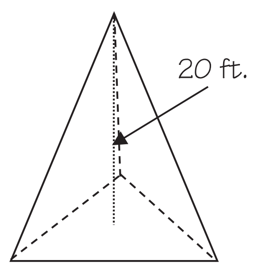


Height: $h = \sqrt{\_\_\_\_^2 - \_\_\_\_^2}$ = ______ m

Area of base: $B =$ ______^{2} = ______ m^2

Volume: $V = \frac{1}{3} \bullet$ ______ $\bullet$ ______ = ______ m^3

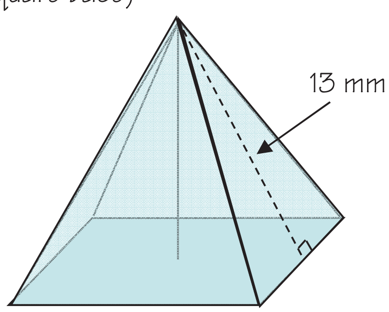
4. (equilateral triangle base)



Area of base: $B = \dfrac{\underline{\qquad}^2\sqrt{3}}{4} = \underline{\qquad\qquad}\ ft^2$

Volume: $V = \dfrac{1}{3} \bullet \underline{\qquad\qquad} \bullet \underline{\qquad\qquad} = \underline{\qquad\qquad}\ ft^3$

5. (square base)



h = ____

B = ____

V = ____

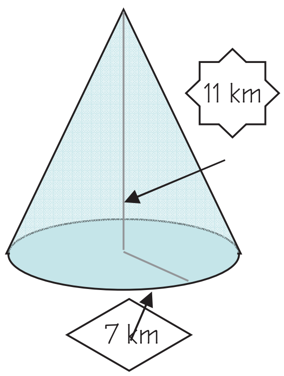
6. A **square**-based pyramid has a **side length** of 10 inches and a **volume** of 3300 in^3. What is the **height** of the pyramid.

Volume of Cones

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

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

1.

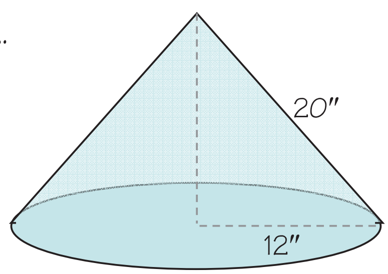


$V = \frac{1}{3} \bullet \pi \bullet$ __________ $^2 \bullet$ __________

$= \frac{1}{3} \bullet \pi \bullet$ __________ $\bullet$ __________

$=$ __________ km^3

2.

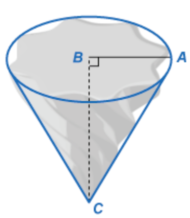


Height: $h = \sqrt{\_\_\_\_^2 - \_\_\_\_^2} =$ __________ in.

$V = \frac{1}{3} \bullet \pi \bullet$ __________ $^2 \bullet$ __________

$= \frac{1}{3} \bullet \pi \bullet$ __________ $\bullet$ __________ $=$ __________ in^3

3.



AB = 3 mm
BC = 10 mm

$V =$ ______________________________

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