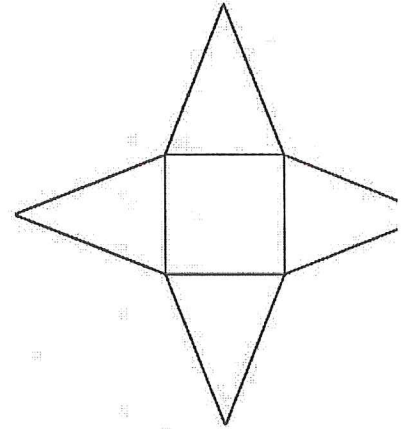
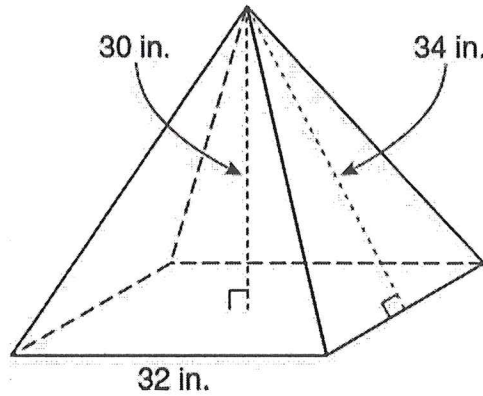
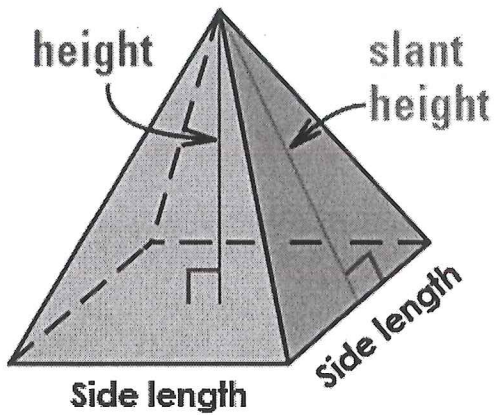


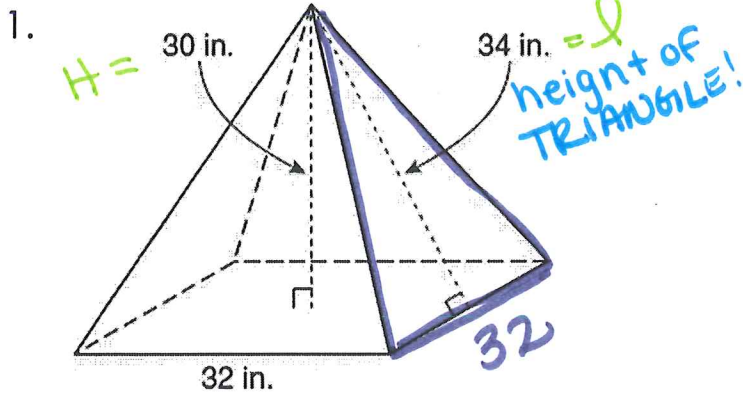
Key

Basic Surface Area and Volume of Pyramids Notes 2017

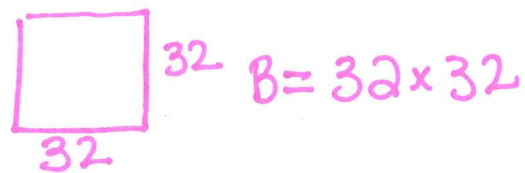


<p><u>Surface Area:</u> Add up all of the triangular faces and the base!</p>	<p><u>Lateral Area:</u> Add up all of the triangular faces</p>	<p><u>Volume:</u> $V = \frac{1}{3}BH$ B = AREA of BASE H = Height perpendicular to the base.</p>
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Find the volume, surface area, and lateral area of the solid. Round to the nearest tenth.



Area of the BASE: *Square!*



Volume $\frac{1}{3} B \cdot H$

$$V = \frac{1}{3} (32 \times 32) 30$$

$$V = 10240 \text{ in}^3$$

Surface Area

4 \triangle s and \square

$$4 \cdot \frac{1}{2} b \cdot h + b \cdot h$$

$$4 \cdot \frac{1}{2} 32 \cdot 34 + 32 \times 32$$

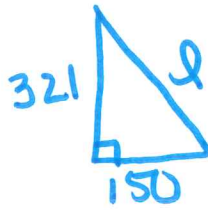
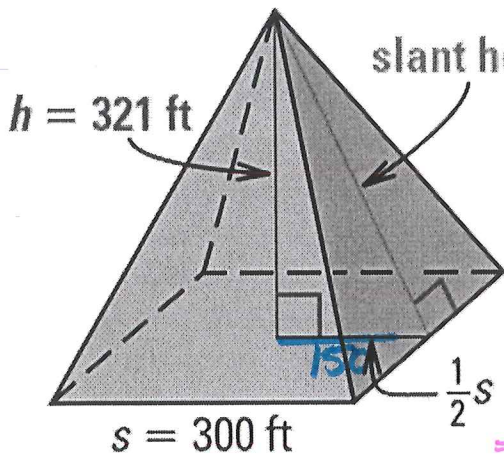
$$SA = 3200 \text{ in}^2$$

Lateral Area
"all of the faces except for the Bases!"

$$LA = 4 \cdot \frac{1}{2} 32 \cdot 34$$

$$LA = 2176 \text{ in}^2$$

2. Find the surface area if you are missing the SLANT HEIGHT.



$$321^2 + 150^2 = l^2$$

$$125541 = l^2$$

$$\sqrt{125541} = l$$

$$l \approx 354.3 \text{ ft}$$

can't be simplified
we could use either
exact value of
rounded.

Surface Area!

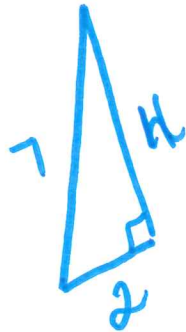
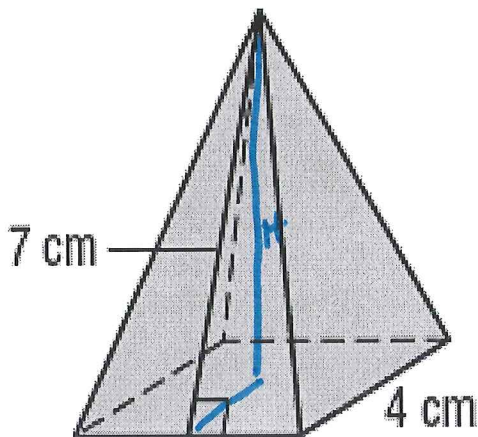
$$= 4 \Delta s + 1 \square$$

$$= 4 \frac{1}{2} b \cdot h + b \cdot b$$

$$= 4 \frac{1}{2} 300 \cdot 354.3 + 300 \cdot 300$$

$$SA = 302580 \text{ ft}^2 \quad SA = \underline{302,580 \text{ ft}^2}$$

3. Find the volume if you are missing the HEIGHT.



$$2^2 + H^2 = 7^2$$

$$4 + H^2 = 49$$

$$H^2 = 45$$

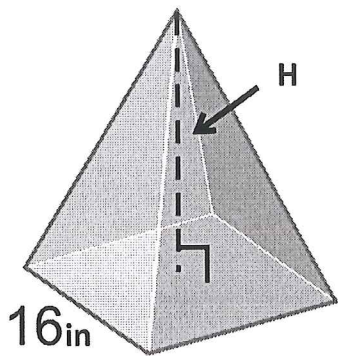
$$\boxed{H = 6.7 \text{ cm}}$$

$$V = \frac{1}{3} B \cdot H \quad V = \frac{1}{3} 4 \cdot 4 \times 6.7$$

$$V = 35.7 \text{ cm}^2$$

$$V = \underline{35.7 \text{ cm}^2}$$

4. The volume of a square pyramid is 4267 in^3 . Find the height of the pyramid.



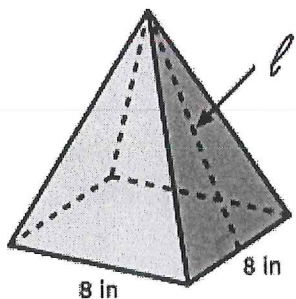
$$V = \frac{1}{3} B \cdot H$$

$$4267 = \frac{1}{3} (16 \times 16) H$$

$$4267 = 85.3 H$$

$$\boxed{50 \text{ in} = H}$$

5. The surface area of a square pyramid is 224 in^2 . Find the missing slant height.



$$SA = 4 \frac{1}{2} b \cdot l + b \cdot b$$

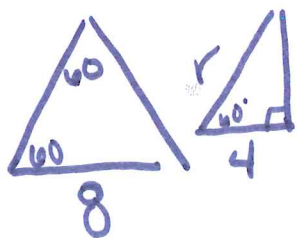
$$224 = 4 \frac{1}{2} 8 \cdot l + 8 \cdot 8$$

$$224 = 16l + 64$$

$$\frac{160}{16} = \frac{16l}{16}$$

$$\boxed{l = 10 \text{ in}}$$

6. Find the surface area.



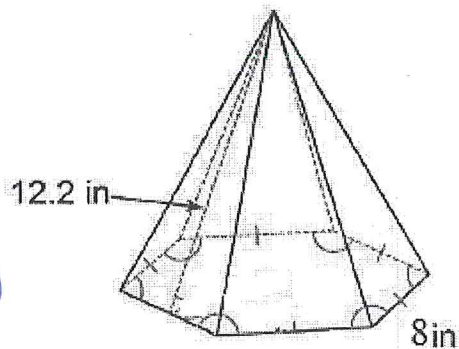
$$\cos(60) = \frac{4}{r}$$

$$\boxed{r = 8 \text{ in}}$$

$$SA = 6 \frac{1}{2} 8 \cdot 8 \sin(60)$$

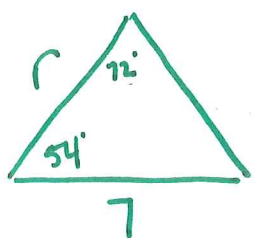
$$+ 6 \frac{1}{2} 8 \times 12.2$$

$$\boxed{SA \approx 459.1 \text{ in}^2}$$



7. Find the Volume.

Find B \Rightarrow 1st!



$$\cos(54) = \frac{3.5}{r}$$

$$r = 5.95 \rightarrow \boxed{r = 6.0}$$

$$V = \frac{1}{3} B \cdot H$$

$$V = \frac{1}{3} 5 \cdot \frac{1}{2} \cdot 6 \cdot 6 \sin(72) \cdot 8$$

$$B = 5 \frac{1}{2} 6 \cdot 6 \sin(72)$$

$$\boxed{V \approx 228.3 \text{ m}^3}$$

