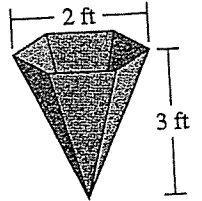


Examples:

1. Find the lateral area and total area of a square pyramid with altitude 24 cm and base edge 14 cm.
2. Find the total area of a regular triangular pyramid whose base-edge length is 5 in. and whose slant height is 8 in.
3. Find the slant height of a regular square pyramid with base-edge length 4 cm if its lateral area is 72 cm^2 .
4. Find the slant height of a regular hexagonal pyramid with base-edge length 6 cm and lateral area 198 cm^2 .
5. The surface area of a regular square pyramid is 48 cm^2 . If the slant height is equal to the base-edge length, find the area of the base.
6. A regular triangular pyramid with equilateral triangular lateral faces has edge length x . Find the surface area of this pyramid in terms of x .

7. A large container shaped like a regular hexagonal pyramid has an open top. If one hundred of these containers are to be painted, both inside and out, with a paint that covers 450 sq ft per gallon, how many gallons of paint must be purchased?



Volume:

The volume of a pyramid equals one-third the area of the base times the height of the pyramid. $V = \frac{1}{3}Bh$

Note: Pyramids can be "non-regular" for volume.

Examples.

1. The height of a pyramid is 14 cm and the base is a right triangle having a hypotenuse of 13 cm and a leg of 12 cm. Find the volume.

2. A regular pyramid with a square base 16 cm on a side has a slant height of 17 cm. What is the volume of the pyramid?

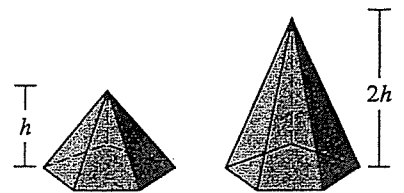
3. Find the height of a pyramid if its volume is 2500 cm^3 and the base is an equilateral triangle 15 cm on a side.

4. The bases of the two pyramids below have equal area. How do their volumes compare?

5. Find the volume of a pyramid whose height is 14 cm and whose base is a rhombus with diagonals 6 cm and 8 cm.

6. Two square pyramids have equal heights. The edge of a side of one base is 3 and of the other base is 2. How do their volumes compare?

7. The bases of the two pyramids to the below have equal area. How do their volumes compare?

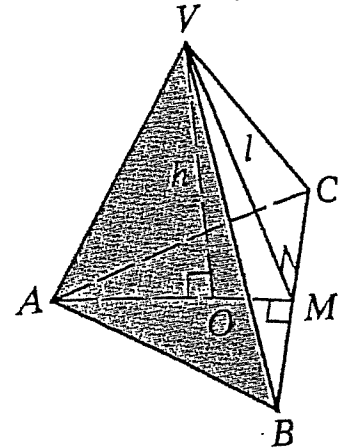


Name _____

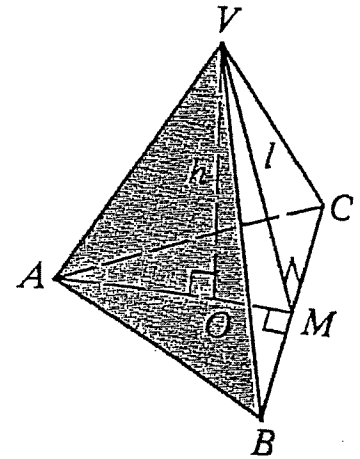
Geometry (H)

Use the diagrams below to help you complete the problems 21 – 25 all on page 486.

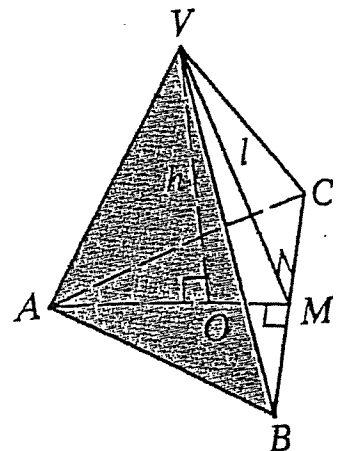
21. If $AM = 9$ and $VA = 10$, find h and l .



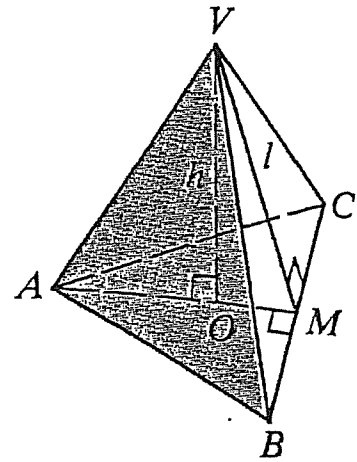
22. a. If $BC = 6$, find AM and AO .
b. If $BC = 6$ and $VA = 4$, find h and l .



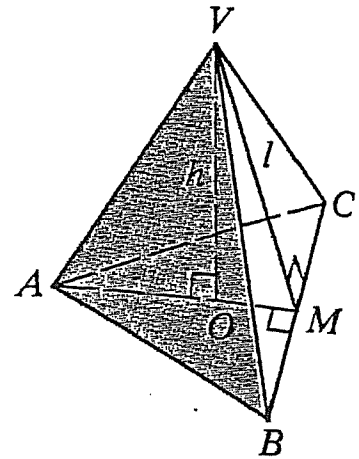
23. a. If $h = 4$ and $l = 5$, find OM , OA , and BC .
b. Find the lateral area and the volume.



24. If $VA = 5$ and $h = 3$, find the slant height, the lateral area, and the volume.



25. If $AB = 12$ and $VA = 10$, find the lateral area and the volume.



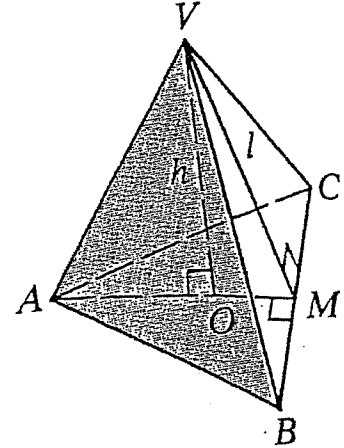
Name Answer Key

Geometry (H)

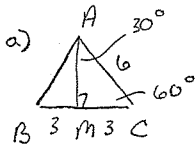
Use the diagrams below to help you complete the problems 21 – 25 all on page 486.

21. If $AM = 9$ and $VA = 10$, find h and l .

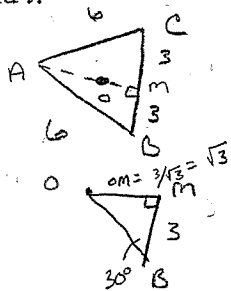
$h = 8$
 $l = \sqrt{43}$



22. a. If $BC = 6$, find AM and AO .
b. If $BC = 6$ and $VA = 4$, find h and l .

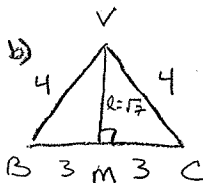
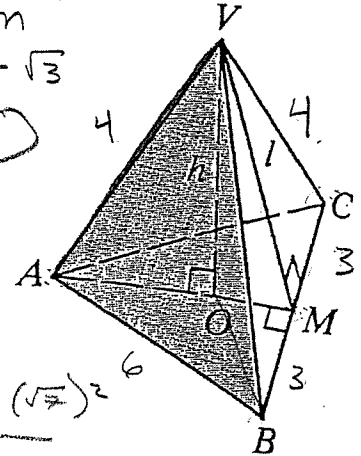


$AM = 3\sqrt{3}$

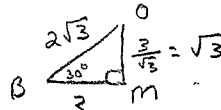


$AO = AM - OM$
 $AO = 3\sqrt{3} - \sqrt{3}$

$AO = 2\sqrt{3}$



$l^2 + 3^2 = 4^2$
 $l = \sqrt{7}$



$h^2 + (\sqrt{3})^2 = (\sqrt{7})^2$

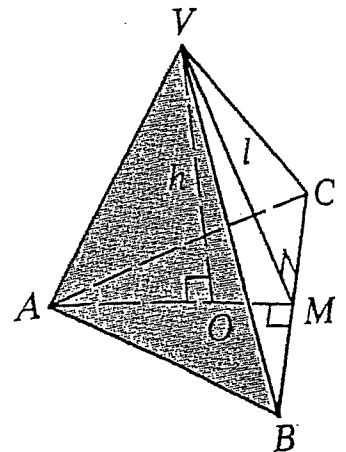
$h = \sqrt{7 - 3}$

$h = 2$

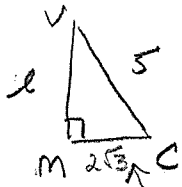
23. a. If $h = 4$ and $l = 5$, find OM , OA , and BC .
b. Find the lateral area and the volume.

a) $OM = 3$
 $OA = 6$
 $BC = 6\sqrt{3}$

b) $LA = 45\sqrt{3}$
 $V = 36\sqrt{3}$



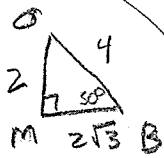
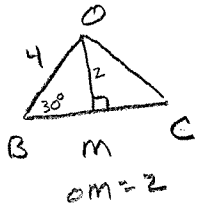
24. If $VA = 5$ and $h = 3$, find the slant height, the lateral area, and the volume.



$$l^2 + (2\sqrt{3})^2 = 5^2$$

$$l^2 = 25 - 12$$

$$l = \sqrt{13}$$



$$OM = 2$$

$$LA = \frac{1}{2}(P)(l)$$

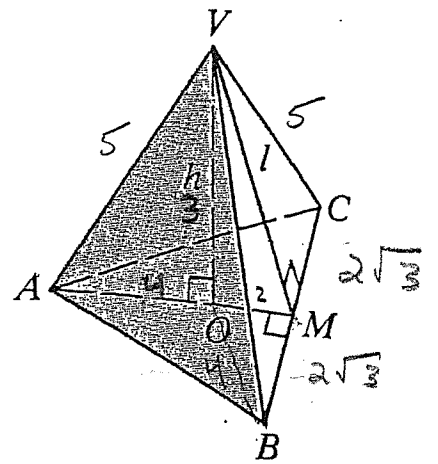
$$LA = \frac{1}{2}(12\sqrt{3})(\sqrt{13})$$

$$LA = 6\sqrt{39}$$

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

$$V = \frac{1}{3}\left(\frac{1}{2}(4\sqrt{3})(6)\right)(3)$$

$$V = 12\sqrt{3}$$



25. If $AB = 12$ and $VA = 10$, find the lateral area and the volume.

$$LA = 144$$

$$V = 24\sqrt{39}$$

