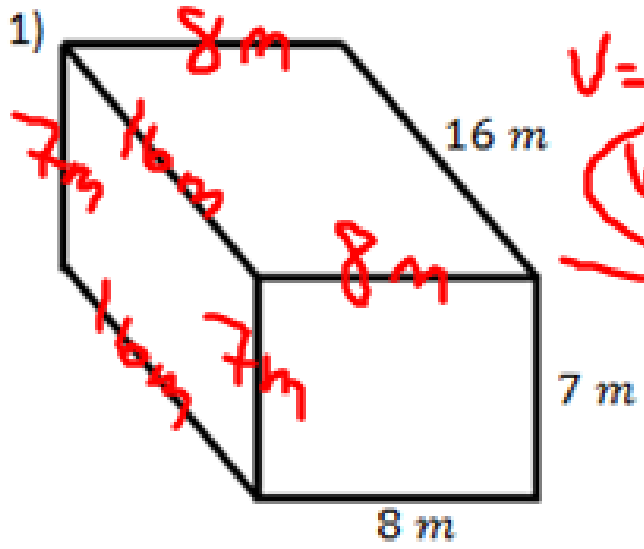
Get out your homework from last night and have it ready to check.
Grab a worksheet from the front table and Warm Up.

Classwork - Volume of Pyramids

Find the Volume and Surface Area of the following solids. SHOW WORK AND LABEL.

1)



Volume

$V = 16 \cdot 7 \cdot 8$

$V = 896\ m^3$

Surface Area

A of F + B

$A = 8 \cdot 16 = 128\ m^2$

$128 \cdot 2 = 256\ m^2$

A of R + L

$A = 7 \cdot 16 = 112\ m^2$

$112 \cdot 2 = 224\ m^2$

A of F + B

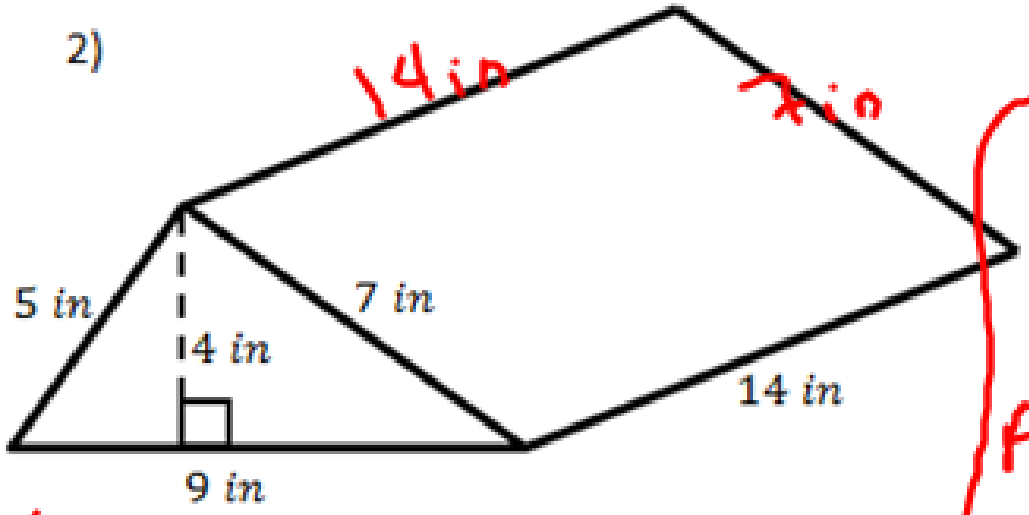
$A = 8 \cdot 7 = 56\ m^2$

$56 \cdot 2 = 112\ m^2$

$SA = 256 + 224 + 112$

$SA = 592\ m^2$

2)



Volume **Surface Area**

A of Δ base = $18\ in^2$

$18 \cdot 2 = 36\ in^2$

A of R□ = $7 \cdot 14 = 98\ in^2$

A of L□ = $5 \cdot 14 = 70\ in^2$

A of B□ = $9 \cdot 14 = 126\ in^2$

$V = Bh$

$B = \frac{1}{2}(9)(9) = 18\ in^2$

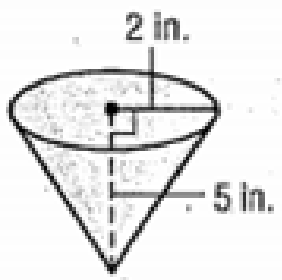
$V = 18\ in^2 (14\ in)$

$V = 252\ in^3$

$SA = 36 + 98 + 70 + 126$

$SA = 330\ in^2$

1.



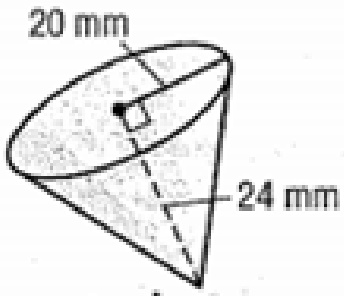
$V = \frac{1}{3} \cdot 3.14(2^2)(5)$

$B = 3.14(2^2) = 12.56 in^2$

$V = \frac{1}{3}(12.56)(5)$

$V =$ $20.9 in^3$

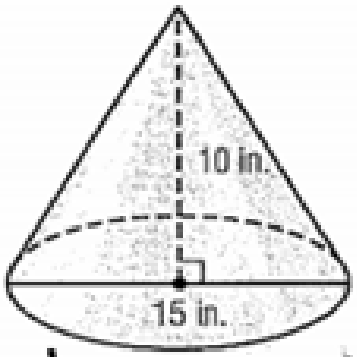
2.



$V = \frac{1}{3} \cdot 3.14(20^2)(24)$

$V =$ $10048 mm^3$

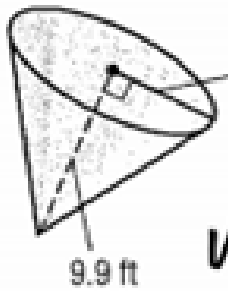
3.



$V = \frac{1}{3}(3.14)(7.5^2)(10)$

$V =$ $588.75 in^3$

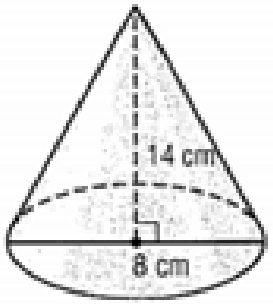
4.



$V = \frac{1}{3}(3.14)(7.4^2)(9.9)$

$V =$ $567.4 ft^3$

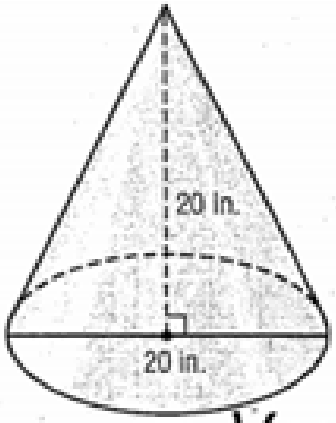
5.



$V = \frac{1}{3}(3.14)(4^2)(14)$

$V = 234.5\,cm^3$

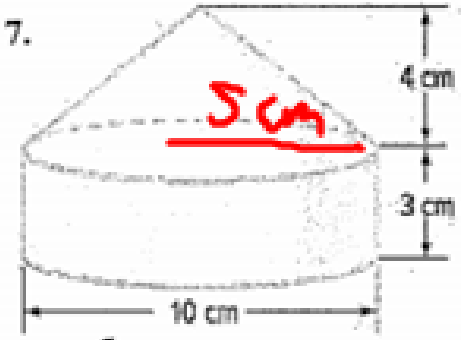
6.



$V = \frac{1}{3}(3.14)(10^2)(20)$

$V = 2093.3\,in^3$

7.



V of Cylinder

$V = 3.14(5^2)(3) = 235.5\,cm^3$

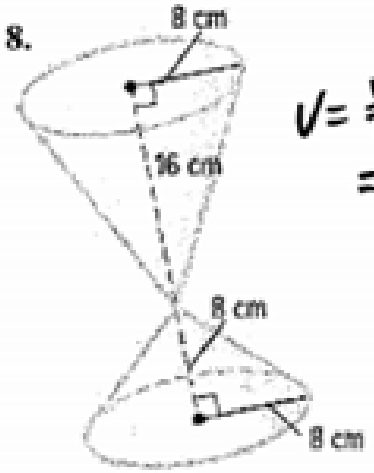
V of Cone

$V = \frac{1}{3}(3.14)(5^2)(4) = 104.7\,cm^3$

235.5+104.7

$V = 340.2\,cm^3$

8.



$V = \frac{1}{3}(3.14)(8^2)(16)$

$= 1071.8\,cm^3$

$V = \frac{1}{3}(3.14)(8^2)(8)$

$= 535.9\,cm^3$

1071.8 + 535.9

$V = 1607.7\,cm^3$

9. volume: 36 cubic inches; height: 9 inches

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

$36 = \frac{1}{3} \cdot B \cdot 9$

$36 = B \cdot 3$

$\div 3 \quad \div 3$

$12 = B$

$B =$ $12\ in^2$

10. volume: 238 cubic centimeters; height: 74 centimeters

$238 = \frac{1}{3} \cdot B \cdot 74$

$\frac{238}{24.\bar{6}} = \frac{24.\bar{6} \cdot B}{24.\bar{6}}$

$9.648 = B$

$B =$ $9.6\ cm^2$

Find the missing dimensions of each cone. Use formula $V = \frac{1}{3}\pi r^2 \cdot h$ to find the missing dimension. SHOW WORK

11. The volume of a cone is 593.46 cubic inches. The radius is 9 inches. Find the height of the cone to the nearest inch.

$593.46 = \frac{1}{3} \cdot 3.14 \cdot 9^2 \cdot h$

$\frac{593.46}{84.78} = \frac{84.78h}{84.78}$

$7\ in = h$

12. The volume of a cone is 471.24 cubic inches and the height is 8 inches. What is the diameter?

$471.24 = \frac{1}{3} \cdot 3.14 \cdot r^2 \cdot 8$

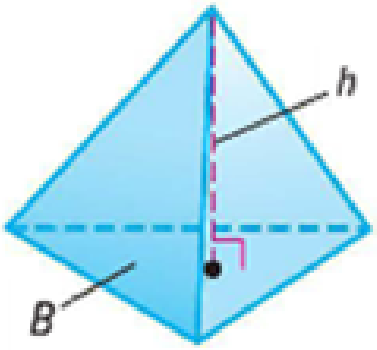
$\frac{471.24}{8.37\bar{3}} = \frac{8.37\bar{3} \cdot r^2}{8.37\bar{3}}$

$\sqrt{56.279} = \sqrt{r^2}$

$7.5 = r$

$7.5 \cdot 2$

$d = 15\ in$



Volume of a Pyramid

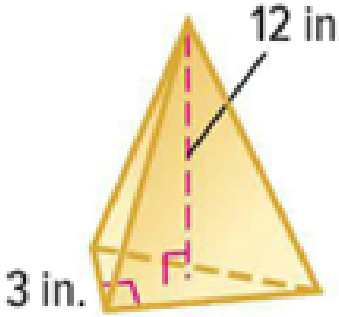
$V = \frac{1}{3}Bh$ $\quad$ $B \rightarrow$ Area of the Base

To find the volume of a pyramid you must find the area of the base and then multiply the area of the base (B) by the height of the pyramid. Remember the height and the base form a right angle. **Make sure you pay attention to the shape of the base so that you find the correct area.**

$A\ of\ Rectangle = l \cdot w$ $\quad$ $A\ of\ Triangle = \frac{1}{2}bh$

1) Find the volume of the following pyramids. SHOW WORK AND LABEL.

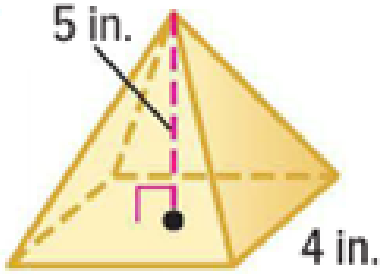
A)



$B = \frac{1}{2}(3)(10) = 15 in^2$

$V = \frac{1}{3}(15)(12) = 60 in^3$

B)

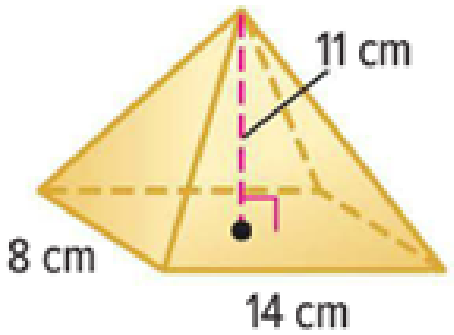


$6\frac{1}{2}$ in.

$B = 6\frac{1}{2}(4) = 26 in^2$

$V = \frac{1}{3}(26)(5) = 43\frac{1}{3} in^3$

C)

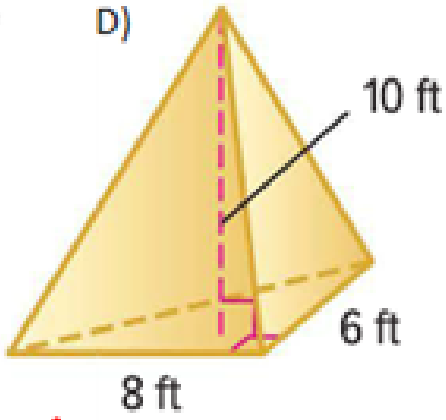


$B = 8 \cdot 14 = 112 \text{ cm}^2$

$V = \frac{1}{3}(112)(11)$

$V = 410.\overline{6} \text{ cm}^3$

D)

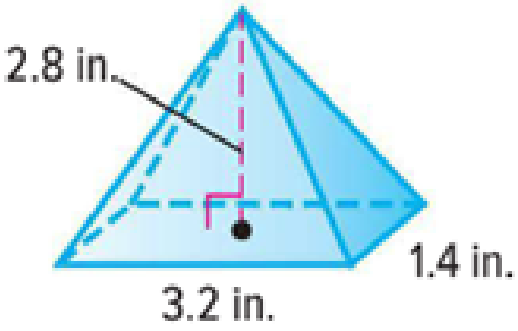


$B = \frac{1}{2}(8)(6) = 24 \text{ ft}^2$

$V = \frac{1}{3}(24)(10)$

$V = 80 \text{ ft}^3$

E)



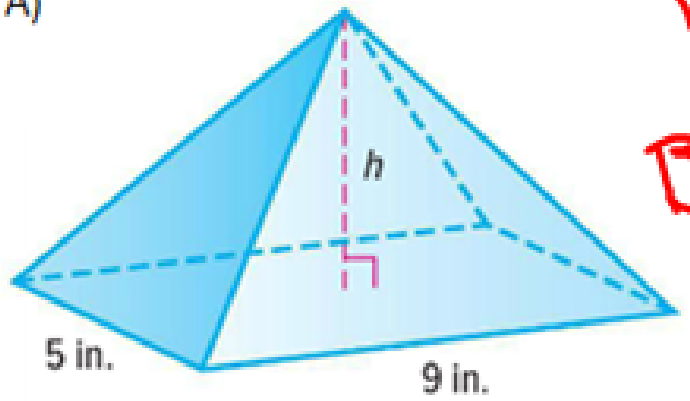
$B = 3.2(1.4) = 4.48 \text{ in}^2$

$V = \frac{1}{3}(4.48)(2.8)$

$V = 4.2 \text{ in}^3$

2) Find the height of the pyramid when given the volume of the pyramid. SHOW WORK AND LABEL.

A)



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

$B = 5 \cdot 9 = 45 in^2$

$90 = \frac{1}{3} \cdot 45 \cdot h$

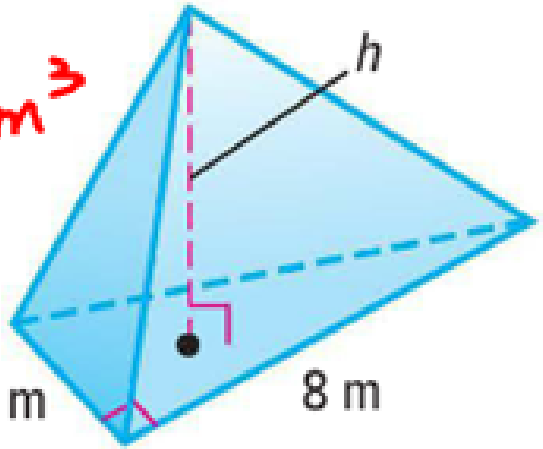
$\frac{90}{15} = \frac{15h}{15}$

$6 = h$

$h =$ 6 in

$V = 90 in^3$

B)



$V = 44\ m^3$

$B = \frac{1}{2}(3)(8) = 12\ m^2$

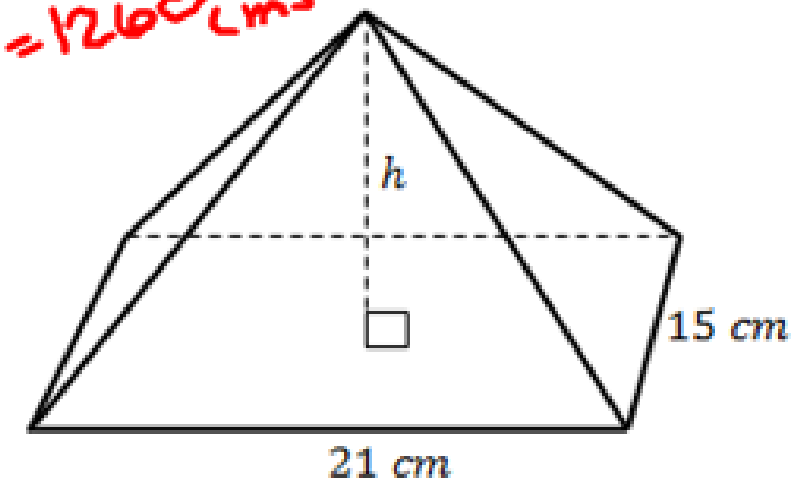
$44 = \frac{1}{3}(12) \cdot h$

$\frac{44}{4} = \frac{4h}{4}$

$11 = h$

$h =$ 11 m

C) $V = 1260\ cm^3$



$B = 21 \cdot 15 = 315$

$1260 = \frac{1}{3}(315) \cdot h$

$\frac{1260}{105} = \frac{105h}{105}$

$12 = h$

$h =$ 12 cm