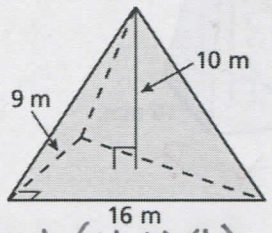
Name Key Date

11.6 Practice WS

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

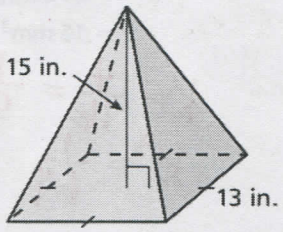
In Exercises 1–3, find the volume of the pyramid.

1.



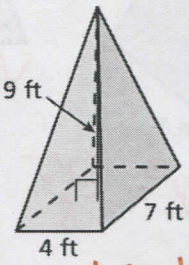
$V = \frac{1}{3}(\frac{1}{2}bh)(h)$
$= \frac{1}{3}(\frac{1}{2}(9)(16))(10)$
$= 240 m^3$

2.



$V = \frac{1}{3}s^2h$
$= \frac{1}{3}(13)^2(15)$
$= 845 in^3$

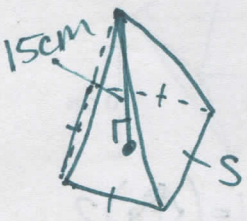
3.



$V = \frac{1}{3}lwh$
$= \frac{1}{3}(7)(4)(9)$
$= 84 ft^3$

In Exercises 4–6, find the indicated measure. Draw and label your own diagram.

4. A pyramid with a square base has a volume of 320 cubic centimeters and a height of 15 centimeters. Find the side length of the square base.

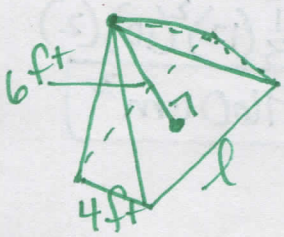


$V = 320 cm^3$

$s = 8 cm$

$V = \frac{1}{3}Bh = \frac{1}{3}s^2h$
$320 = \frac{1}{3}(s)^2(15)$
$960 = s^2(15)$
$64 = s^2$
$\pm 8 = s$

5. A pyramid with a rectangular base has a volume of 60 cubic feet and a height of 6 feet. The width of the rectangular base is 4 feet. Find the length of the rectangular base.

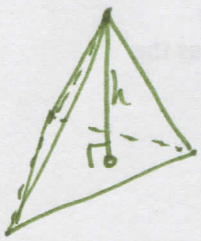


$V = 60 ft^3$

$7.5 ft$

$V = \frac{1}{3}Bh = \frac{1}{3}lwh$
$60 = \frac{1}{3}(l)(4)(6)$
$7.5 = l$

6. A pyramid with a triangular base has a volume of 80 cubic meters and a base area of 20 square meters. Find the height of the pyramid.



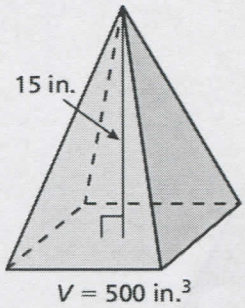
$V = 80 m^3$
$B = 20 m^2$

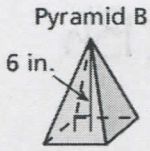
$12 m$

$V = \frac{1}{3}Bh$
$80 = \frac{1}{3}(20)h$
$240 = 20h$
$12 = h$

In Exercises 7 and 8, the pyramids are similar. Find the volume of Pyramid B.

7.





V = ?

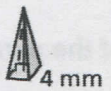
$\frac{A}{B} = K = \frac{15}{6} = \frac{5}{2}$ $K^3 = \frac{125}{8}$

$\frac{500}{x} = \frac{125}{8}$

$125x = 4000$

$x = 32\ in^3$

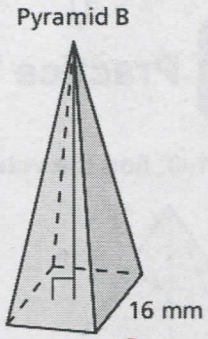
8.



$V = 16\ mm^3$

$K = \frac{4}{16} = \frac{1}{4}$

$K^3 = \frac{1}{64}$



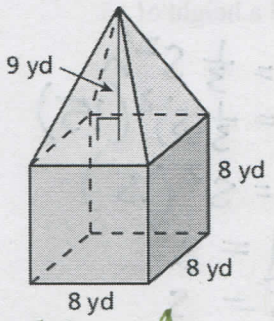
V = ?

$\frac{16}{x} = \frac{1}{64}$

$x = 1024\ mm^3$

In Exercises 9–11, find the volume of the composite solid.

9.



$V = \square + \diamond$

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

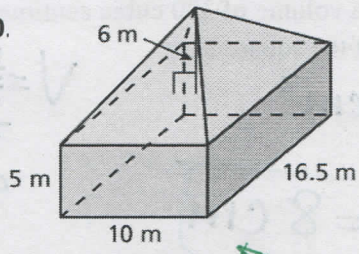
$= s^3 + \frac{1}{3}s^2(h)$

$= 8^3 + \frac{1}{3}(8)^2(9)$

$= 512 + 192$

$= 704\ yd^3$

10.



$V = \square + \diamond$

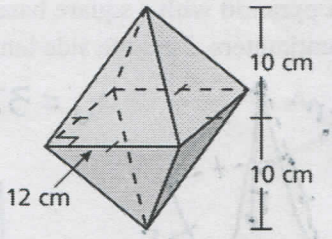
$= lwh + \frac{1}{3}lwh$

$= (16.5)(10)(5) + \frac{1}{3}(16.5)(10)(6)$

$= 825 + 330$

$= 1155\ m^3$

11.



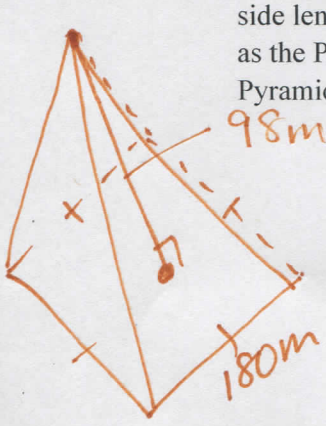
$V = (\diamond)2$

$= \left(\frac{1}{3}s^2h\right)(2)$

$= \frac{1}{3}(12)^2(10)(2)$

$= 960\ cm^3$

12. The Pyramid Arena in Memphis, Tennessee is about 98 meters tall and has a square base with a side length of about 180 meters. A prism-shaped building has the same square base as the Pyramid Arena. What is the height of the building if it has the same volume as the Pyramid Arena? *(HINT: sketch a diagram)*



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

$= \frac{1}{3}(180)^2(98)$

$= 1{,}058{,}400$

$V = Bh$

$1058400 = 180^2h$

$h = 32.667\ m$