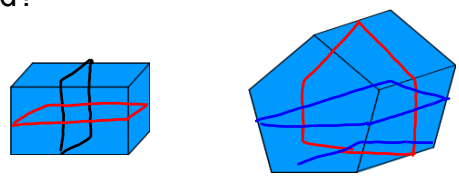
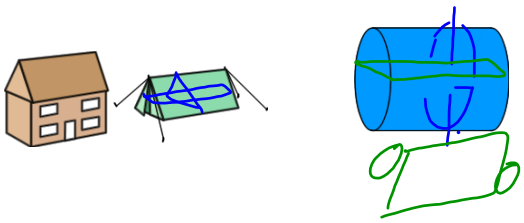
Warm-up

What is the shape of the cross section of each solid?





Volume

Right Prism: $V = Bh$ B- area of Base

Cylinder: $V = \pi r^2 h$

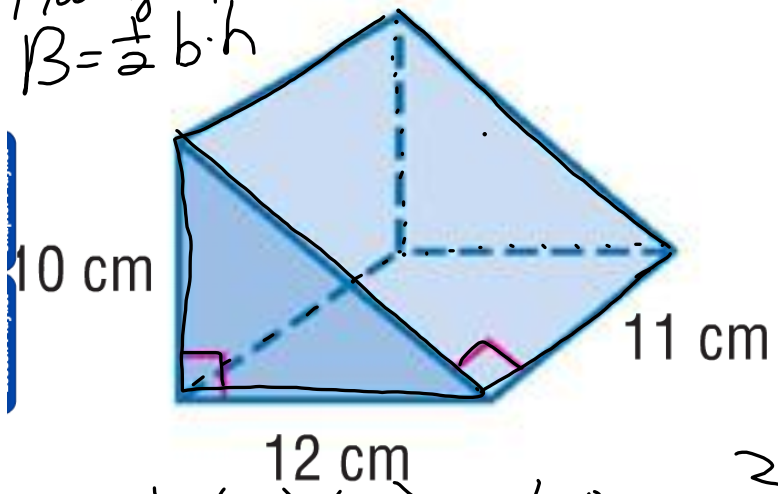
Bases of a prism are always parallel

Height of prism is the distance between the 2 bases.

Sides of prism are the rectangles

Triangle Base

$B = \frac{1}{2} b \cdot h$

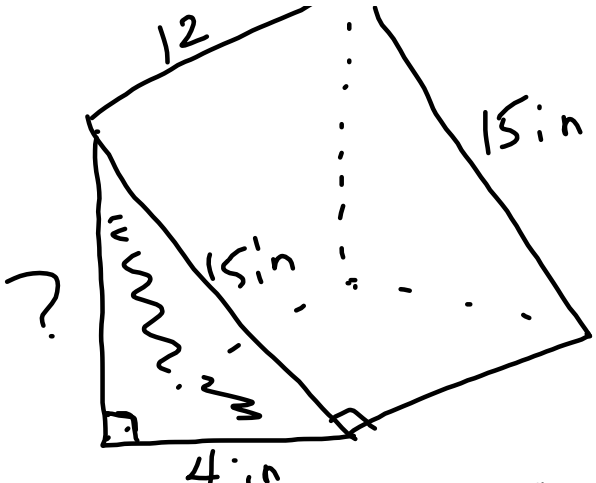


$B = \frac{1}{2}(10)(12) = 60\ cm^2$

$h = 11\ cm$

$B \cdot h$

$V = 60 \cdot 11 = 660\ cm^3$



$B = \frac{1}{2}(4) \cdot (14.456) = 28.912\ in^2$ $h = 12$

$a^2 + b^2 = c^2$

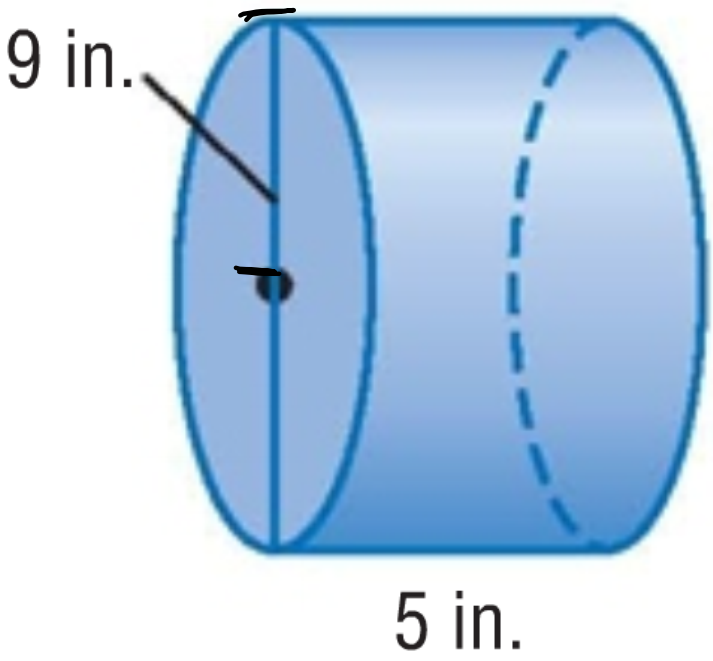
$4^2 + b^2 = 15^2$

$V\ 28.912(12)$

$346.944\ in^3$

$b = 14.456$

14.457



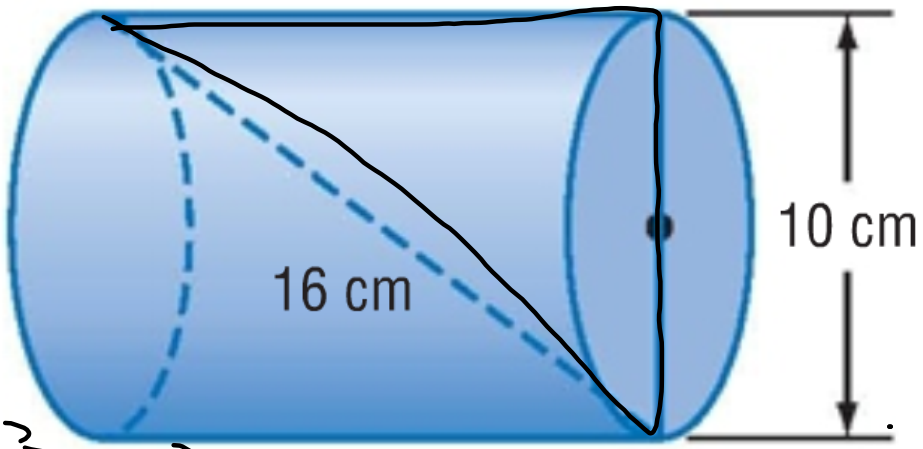
$V = B \cdot h$

$V = \pi \cdot r^2 \cdot h$

$V = \pi 9^2 \cdot 5$

$= 405\pi \text{ in}^3$

2B.



$\pi = 3.14$

$10^2 + h^2 = 16^2$

$h = 12.489$

12.490

$V = \pi \cdot r^2 \cdot h$

$\pi \cdot 5^2 \cdot 12.490$

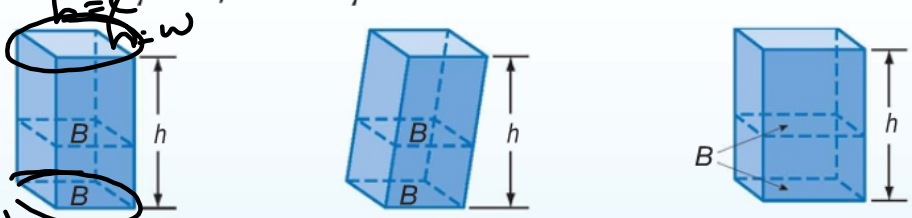
980.465 in^3

Key Concept — Cavalieri's Principle

For Your FOLDABLE

Words If two solids have the same height h and the same cross-sectional area B at every level, then they have the same volume.

Models



These prisms all have a volume of Bh.

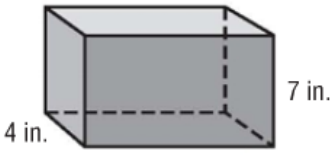
$(\ell \times w) \cdot h$

B

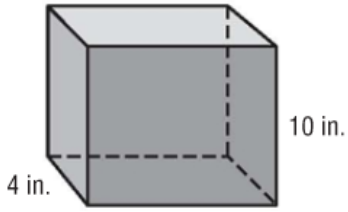
$V = \pi (3)^2 \cdot 8$

$= 72\pi \text{ cm}^3$

Prisms A and B have the same length and width, but different heights. If the volume of Prism B is 150 cubic inches greater than the volume of Prism A, what is the length of each prism?



Prism A



Prism B

Assignment:

pg 851 12 - 36 by 3's, 53, 54 & 55