

1. Match the following terms to the diagram.

Given the rectangular prism with face BCFE as one of its bases. Use each value ONLY ONCE.

C 1. Edge

E 2. Lateral Face

A 3. Base

D 4. Vertex

B 5. Height

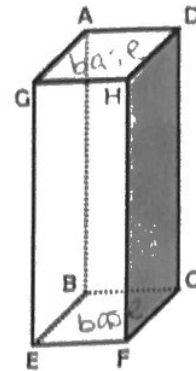
A. Rectangle ADHG

B.  $\overline{HF}$

C.  $\overline{AD}$

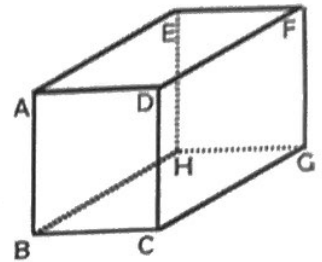
D. Point B

E. Rectangle HDCF

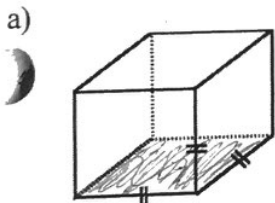


2. After looking at the rectangular prism to the right, a young lady in the class raises her hand and says, "Could I use rectangle ADCB as my base instead of rectangle BHGC?" How should the teacher respond?

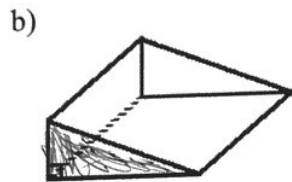
Yes, either could be considered a base because they both have parallel, congruent opposite faces



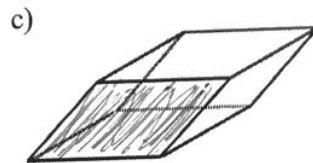
3. Properly name the following prisms.



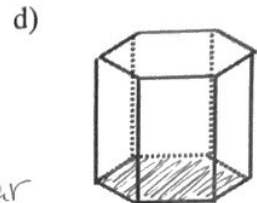
Cube



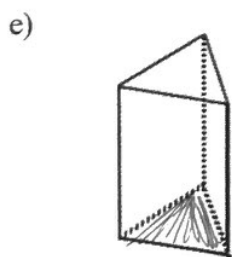
triangular prism



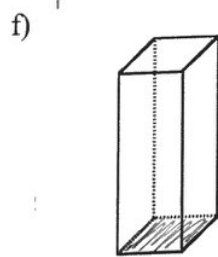
oblique rectangular prism



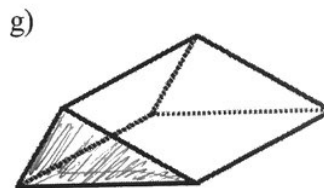
hexagonal prism



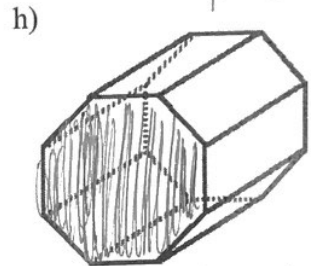
triangular prism



rectangular prism



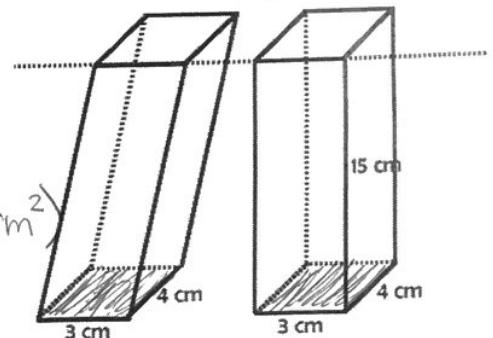
triangular prism



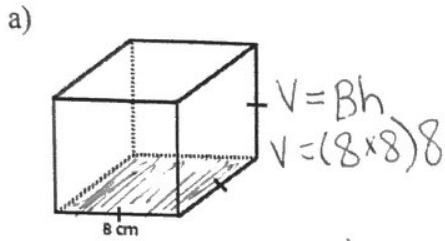
octagonal prism

4. Cavalieri's principle says that these two prisms have equal volume. Explain why that is true?

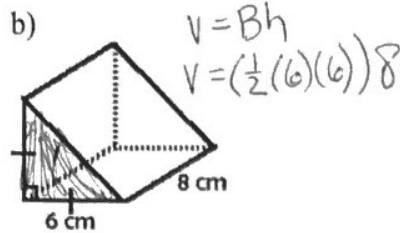
\*same height (15 cm)  
\*bases have equal area (12cm<sup>2</sup>)



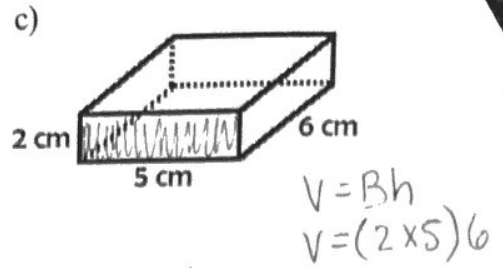
5. Determine the volume of the prisms. (Lines that appear perpendicular are perpendicular.)



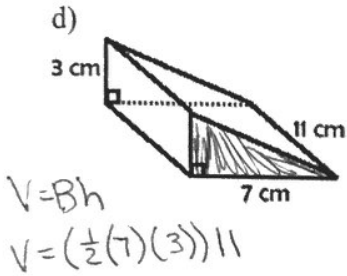
Volume = 512 cm<sup>3</sup>



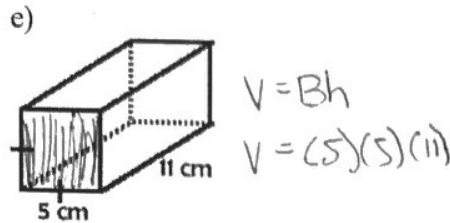
Volume = 144 cm<sup>3</sup>



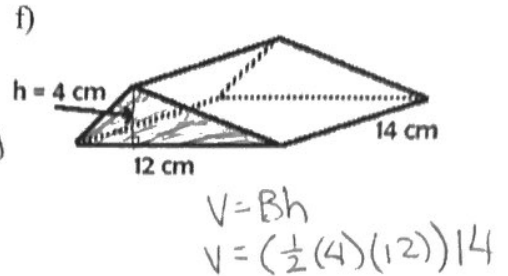
Volume = 60 cm<sup>3</sup>



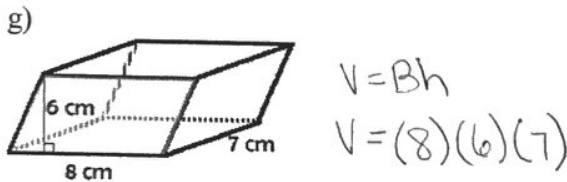
Volume = 115.5 cm<sup>3</sup>



Volume = 275 cm<sup>3</sup>



Volume = 336 cm<sup>3</sup>



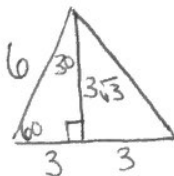
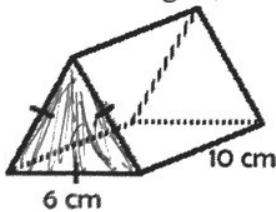
Volume = 336 cm<sup>3</sup>

Volume = \_\_\_\_\_

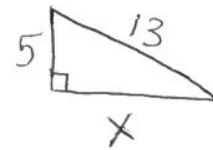
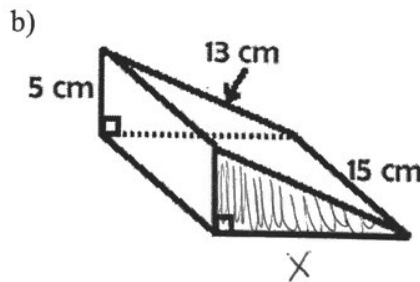
Volume = \_\_\_\_\_

6. Determine the volume of the prism.

a) Equilateral Triangular Prism



$V = Bh$   
 $V = (\frac{1}{2}(6)(3\sqrt{3}))10$   
 $V = 90\sqrt{3} \text{ cm}^3$



$V = Bh$   
 $V = (\frac{1}{2}(12)(5))15$   
 $V = 450 \text{ cm}^3$

$x^2 + 5^2 = 13^2$   
 $x^2 + 25 = 169$   
 $\sqrt{x^2} = \sqrt{144}$   
 $x = 12$

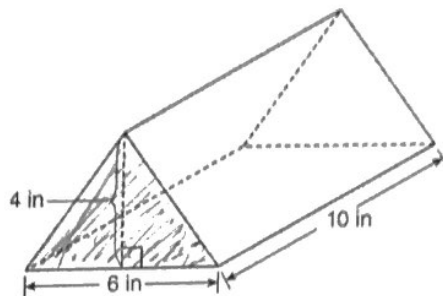
Two prisms have equal heights and equal volumes. The base of one is a pentagon and the base of the other is a square. If the area of the pentagonal base is 36 square inches, how many inches are in the length of each side of the square base?

- 1) 6
- 2) 9
- 3) 24
- 4) 36

Area of bases =  
 $6 \times 6 = 36$

8. A packing carton in the shape of a triangular prism is shown in the diagram below. What is the volume, in cubic inches, of this carton?

$V = Bh$   
 $V = (\frac{1}{2}(4)(6))(10)$   
 $V = 120 \text{ in}^3$



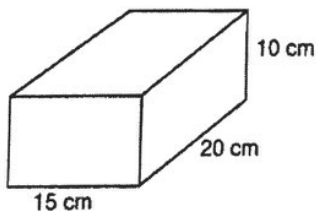
9. The Parkside Packing Company needs a rectangular shipping box. The box must have a length of 11 inches and a width of 8 inches. Find, to the nearest tenth of an inch, the minimum height of the box such that the volume is at least 800 cubic inches.

$V = L \cdot W \cdot H$   
 $800 = (11)(8)(H)$   
 $800 = 88H$   
 $\frac{800}{88} = \frac{88H}{88}$   
 $9.1 \approx H$

10. A box in the shape of a cube has a volume of 64 cubic inches. What is the length of a side of the box?

$V = s^3 \rightarrow 64 = s^3 \rightarrow 4 = s$

11. Jed bought a generator that will run for 2 hours on a liter of gas. The gas tank on the generator is a rectangular prism with dimensions 20 cm by 15 cm by 10 cm as shown below.



If Jed fills the tank with gas, how long will the generator run? Show how you arrived at your answer. [Note:  $1000 \text{ cm}^3 = 1 \text{ liter}$ ]

$V = L \cdot W \cdot H$   
 $V = 15 \cdot 20 \cdot 10$   
 $V = 3000 \text{ cm}^3 = 3 \text{ liters}$

$3 \times 2 = 6 \text{ hours}$