For each multiple choice question, please circle your answer.

1. The lateral faces of a prism are the non-base faces.　　　　　　　**(T)** or F

2. A triangular prism has a 6 faces.　　　　　　　T or **(F)**

3. A cube has 8 congruent square faces.　　　　　　　T or **(F)**

4. A right triangular prism has right triangular lateral sides.　　　　　　　T or **(F)**

5. If a hexagonal prism has some parallelogram faces that are not rectangles then it is oblique.　　**(T)** or F

6. In all prisms there will always be more lateral faces then base faces.　　**(T)** or F

7. A square pyramid has 5 faces.　　　　　　　**(T)** or F

8. The lateral edge of a pyramid is equal to the slant height the lateral face.　　T or **(F)**

9. The height of a right square pyramid is always less than the slant height of a lateral face.　　**(T)** or F

10. The ratio of volume between a prism and a pyramid with the same base and height is 3:1.　　**(T)** or F

11. If a prism and a pyramid have the same base and height, then the volume of pyramid
    will always be the greater value.　　　　　　　T or **(F)**

12. The volume of a cylinder is $\frac{1}{3}$ the amount of a cone with the same radius and height.　　T or **(F)**

13. Match the following terms to the diagram.

Given the square pyramid. Use each value ONLY ONCE.

_____**D**____ Height　　　　　　　A. ΔEAD

_____**A**____ Lateral Face　　　　　B. $\overline{AG}$

_____**B**____ Slant Height　　　　　C. $\overline{AB}$

_____**C**____ Lateral Edge　　　　　D. $\overline{AF}$

_____**E**____ Base　　　　　　　　E. Square EDCB
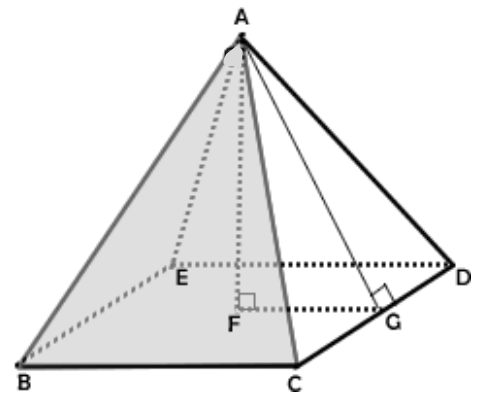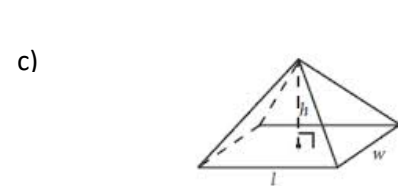
14. Properly name the following solids.

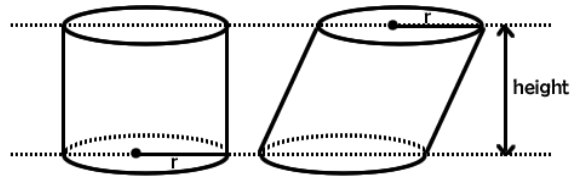a)　　　　　　　　　　b)　　　　　　　　　　c)
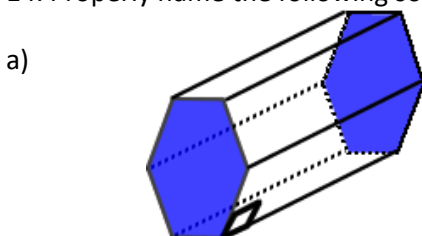
Right Hexagonal prism　　**Oblique Rectangular prism**　　**Right square pyramid**
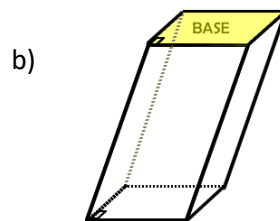
15. Cavalieri's principle says that these two prisms have equal volume. Explain why that is true?

Same base area and same height

16. A pyramid and a prism have the same base and height. If the volume of the prism is 54 cm^3, what is the volume of the pyramid? Leave your answer in exact form.

Pyramid = $\frac{1}{3}$ prism = $\frac{1}{3}$(54) = 18 cm^3

17. Determine the volume of the solids. (Lines that appear perpendicular are perpendicular.)

a)

B = ½ (12)(6√3)
B = 36√3

V = Bh = 36√3 (20)

Volume = __720√3 cm^3__ (E)

b)

Volume = __27 cm^3__ (E)

c)

V = π(7)^2(11)

Volume = __539 π cm^3__ (E)

d)

Big - small
π(3)^2(13) - π(2)^2(13)
117 π - 52 π = 65 π ≈ 204.20

Volume = __204.20 cm^3__ (2 dec)

e) Given that the solid below is a square pyramid:

h = 6 cm

4 cm

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

V = $\frac{4^2(6)}{3}$

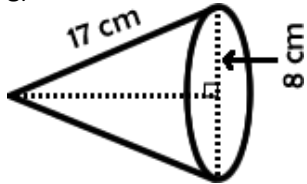Volume = __32 cm^3__ (E)

f)

12 cm

5 cm

V = Bh = 120.8 (12)

22.5°

a

2.5

tan 22.5 = $\frac{2.5}{a}$

a = 6.04

B = ½ (6.04)(40)

B = 120.8

Volume = __1449.60 cm^3__ (2 dec)

g)

17 cm

8 cm

$h^2 + 8^2 = 17^2$

$h = 15$

$V = \dfrac{\pi(8)^2(15)}{3}$

Volume = __320 π cm^3__ (E)

h)

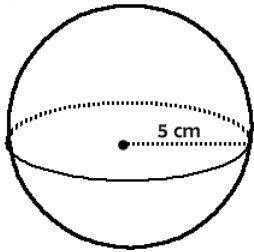$24\sqrt{2}$ cm

24

45°

12

24
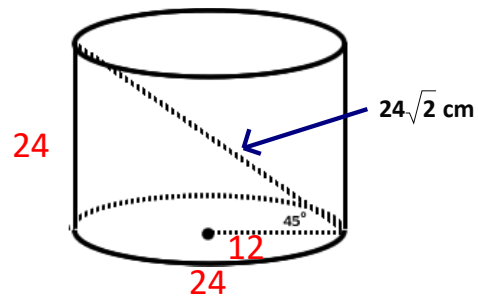
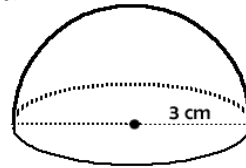$V = \pi(12)^2(24)$

Volume = __3456 π cm^3__ (E)

i)

5 cm

$V = \dfrac{4\pi(5)^3}{3}$

$V = \dfrac{500\pi}{3}$
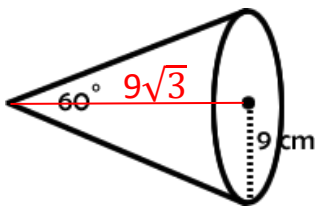
Volume = __523.60 cm^3__ (2 dec.)

j)

3 cm

$V = \dfrac{2\pi(3)^3}{3}$

Volume = __18 π cm^3__ (E)

k)

60° $9\sqrt{3}$

9 cm
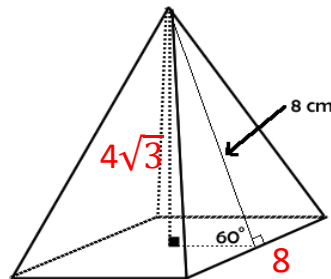
$V = \dfrac{\pi(9)^2(9\sqrt{3})}{3}$

Volume = __243$\pi\sqrt{3}$ cm^3__ (E)

l) Given the following is a square pyramid:

8 cm

$4\sqrt{3}$

60°

8

$V = \dfrac{(8)^2(4\sqrt{3})}{3}$

Volume = __$\dfrac{256\sqrt{3}}{3}$__ (E)

m) (2 dec.)
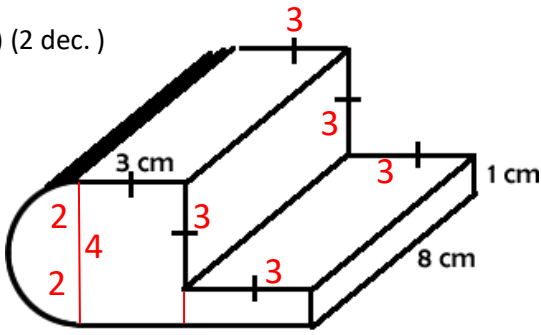
½ cylinder + prism + prism
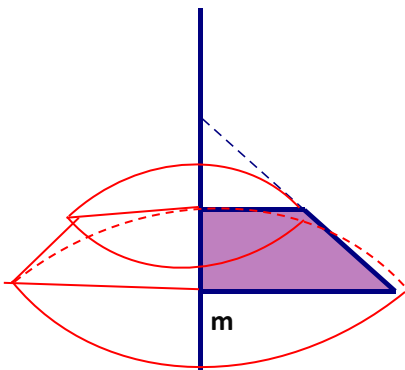
$\frac{1}{2}\pi(2)^2(8) + 12(8) + 3(8)$

$16\pi + 96 + 24$

$16\pi + 120 \approx 170.27 \text{ cm}^3$

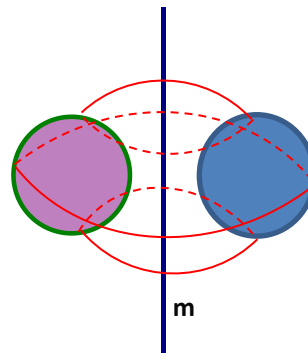18. Describe the solid that is formed by rotating each of these figures about line m and sketch it.

a)

Name/Description

Cone with top removed

frustum

b)

Name/Description

donut

torus