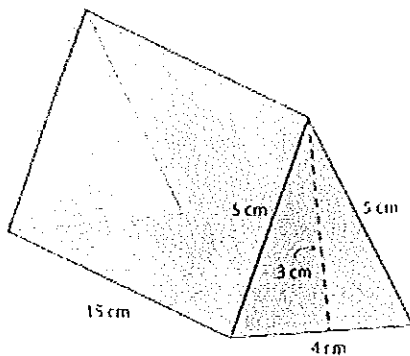


Name:

# Boot Camp: Solids Take Home and Check Tier C

1) Find the surface area and volume of the following figure.

Identify the solid:



① Triangular Prism

SA

$$\Delta = (4 \times 3) \div 2 = 6 \text{ cm}^2$$

$$\Delta = (4 \times 3) \div 2 = 6 \text{ cm}^2$$

$$\square = 15 \times 5 = 75 \text{ cm}^2$$

$$\square = 15 \times 5 = 75 \text{ cm}^2$$

$$\square = 15 \times 4 = 60 \text{ cm}^2$$

$$\boxed{222 \text{ cm}^2}$$

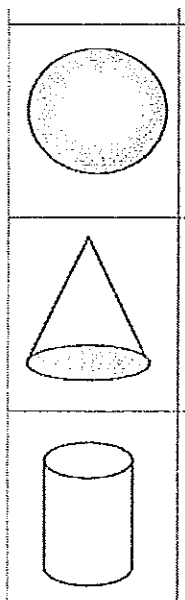
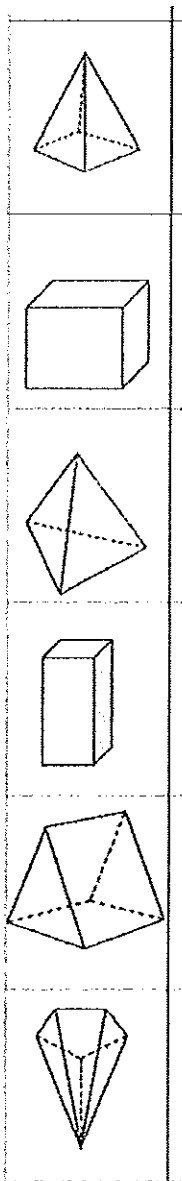
Volume = Area of base  $\times$  h

$$\text{Base} = \Delta = (4 \times 3) \div 2 = 6 \text{ cm}^2$$

$$H = 15 \text{ cm}$$

$$6 \times 15 = \boxed{90 \text{ cm}^3}$$

2) Identify each solid below.



2)

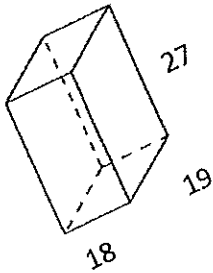
- a) Rect pyramid
- b) Cube
- c) Triangular pyramid
- d) Rec prism
- e) Triangular prism
- f) Pentagonal pyramid
- g) sphere
- h) cone
- i) cylinder

3) How many faces, edges, and vertices does a rectangular prism have?

3) faces = 6  
edges = 12  
vertices = 8

4) Find the surface area and volume of the following figure.

Identify the solid:



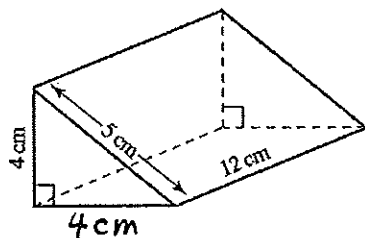
4) Rectangular prism

$$\begin{aligned}
 SA &= 2(18 \times 19) + 2(19 \times 27) + 2(18 \times 27) = \\
 &= 2(342) + 2(513) + 2(486) \\
 &= 684 + 1026 + 972 \\
 SA &= \boxed{2682 \text{ ft}^2}
 \end{aligned}$$

$$\begin{aligned}
 V &= l \times w \times h \\
 (27)(19)(18) &= \boxed{9234 \text{ ft}^3}
 \end{aligned}$$

5) Find the surface area and volume of the following figure.

Identify the solid:



5) Triangular Prism

SA =

Bases =

$$\begin{cases}
 \Delta = (4 \times 4) \div 2 = 8 \text{ cm}^2 \\
 \Delta = (4 \times 4) \div 2 = 8 \text{ cm}^2
 \end{cases}$$

Faces:

$$\begin{aligned}
 \square &= 5 \times 12 = 60 \text{ cm}^2 \\
 \square &= 12 \times 4 = 48 \text{ cm}^2 \\
 \square &= 12 \times 4 = 48 \text{ cm}^2
 \end{aligned}$$

$$\boxed{172 \text{ cm}^2}$$

V = area of base  $\times$  h

$$\text{Base } \Delta = (4 \times 4) \div 2 = 8 \text{ cm}^2$$

$$H = 12 \text{ cm}$$

$$8 \times 12 = \boxed{96 \text{ cm}^3}$$

6) Michelle put her sister's birthday present in a box with a length of 13 mm, a width of 4mm, and a height of 8 mm. How much square millimeters of wrapping paper will Michelle need to completely cover the box.

If the wrapping paper costs 2 cents per  $mm^2$ , how much will it cost Michelle to wrap her sister's present?

6) Find SA

$$SA = 2(13 \times 4) + 2(13 \times 8) + 2(4 \times 8)$$

$$= 2(52) + 2(104) + 2(32)$$

$$= 104 + 208 + 64$$

$$= 376 \text{ mm}^2$$

$$376 \times .02 = \boxed{\$7.52}$$

7) A swimming pool is 8 m long, 6 m wide, and 1.5 meters deep. The water-resistant paint needed for the pool costs \$6 per square meter.

a) How much will it cost to paint the interior surfaces of the pool?

b) How many liters of water will be needed to fill it?



a)

SA  $\rightarrow$  Interior

$$2(8 \times 1.5) + 2(6 \times 1.5) + (8 \times 6)$$

$$2(12) + 2(9) + 48$$

$$24 + 18 + 48 = 90 \text{ m}^2$$

$$90 \times .6 = \boxed{\$540}$$

pnt int. surfaces

b)  $V = 6 \times 8 \times 1.5 = 72 \text{ m}^3$

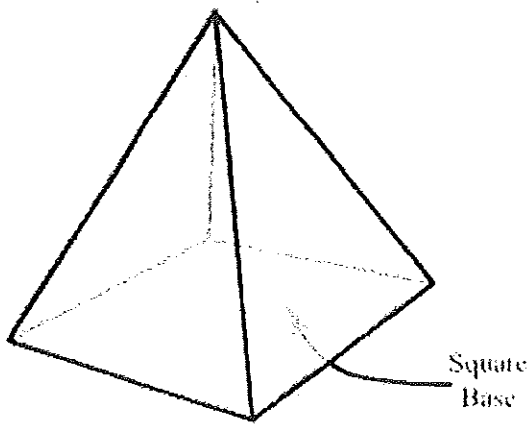
$$\frac{1}{1000} = \frac{72}{x}$$

$$\boxed{x = 72000 \text{ L of water}}$$

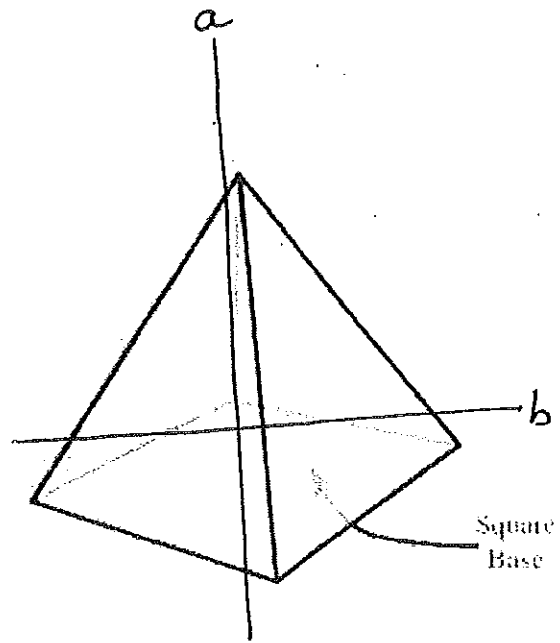
$$\boxed{1 \text{ m}^3 = 1000 \text{ L}}$$

8) Draw a cross section of this pyramid when it is cut by the planes described below. Then tell what shape is produced.

- a) Perpendicular to its base
- b) Parallel to its base



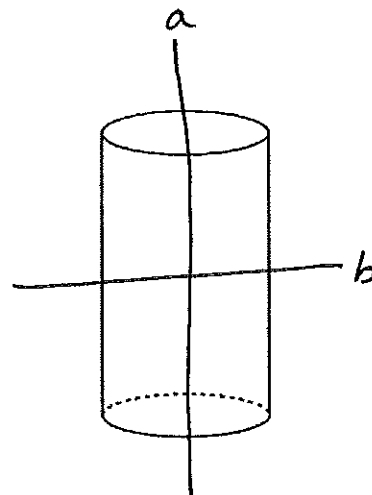
- a) perp = triangle
- b) parallel = square



9) Draw a cross section of this cylinder when it is cut perpendicular and parallel to the base. Tell what shapes are produced.



- a) perp = rect
- b) par = circle



10) There was a \_\_\_\_\_ that had a cross-section removed from it. What are all the possible shapes that the \_\_\_\_\_ could be if the cross-section was a rectangle?

Select one or more correct answers:

- a) Cone
- b) Cube
- c) Cylinder
- d) Pyramid
- e) Rectangular Solid
- f) Sphere

10)

Cube  
Cylinder  
Pyramid  
Rectangular Solid

11) You are painting a rectangular room that is 13 feet long, 9 feet wide, and 8.5 feet high. There is a window that 2.5 feet wide and 5 feet high on one wall. On another wall, there is a door that is 4 feet wide and 7 feet high. A gallon of paint covers 350 square feet. How many gallons of paint do you need to cover the four walls with one coat of paint, not including the window and door?

11) SA

$$\text{Window area} = 2.5 \times 5 = 12.5 \text{ ft}^2$$

$$\text{Door area} = 4 \times 7 = 28 \text{ ft}^2$$

SA of Rm (w/out ceiling or floor)

$$2(13 \times 8.5) + 2(9 \times 8.5)$$

$$2(110.5) + 2(76.5)$$

$$221 + 153$$

$$374 \text{ ft}^2$$

Subtract window/door =

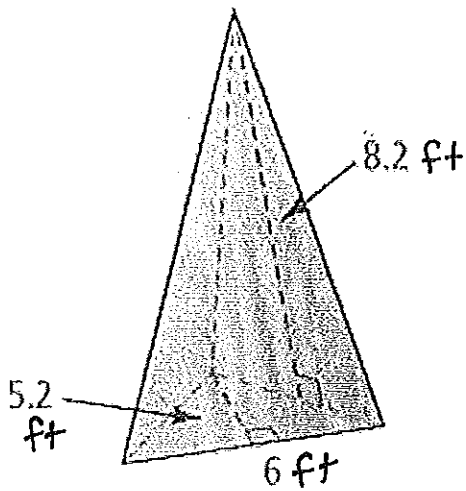
$$374 - 40.5 = 333.50 \text{ ft}^2$$

$$\frac{333.5}{350} \approx .95 \text{ gallons}$$

less than 1 gallon

12) Find the surface area of the figure below.

Identify the solid:



12) Tri Prism

$$\text{Base} = \frac{(6)(5.2)}{2} = 15.6 \text{ ft}^2$$

$$\text{Faces} = \frac{(6)(8.2)}{2} = 24.6 \text{ ft}^2$$

$$3 \text{ of them} = 73.8 \text{ ft}^2$$

$$\text{Add: } \boxed{89.4 \text{ ft}^2}$$

