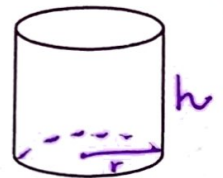


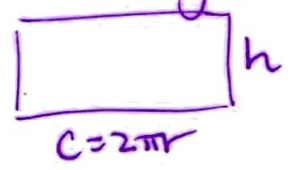
Cylinder-

a geometric solid with 2 congruent // bases (which are circles)



The circumference of a cylinder corresponds to the perimeter of a prism.

If a cylinder was cut and unrolled, then the resulting figure would be a rectangle.



Lateral surface area of a cylinder-
(Area of faces!)

$$L = \underbrace{2\pi r}_C h$$

Total surface area of a cylinder-
(Area of faces & bases)

$$T = L + 2(\pi r^2)$$

Volume of a cylinder-

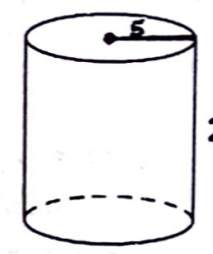
$$V = \pi r^2 h$$

(B · h)

EXAMPLES:

1. Find the lateral area, total surface area, and volume of the right cylinder.

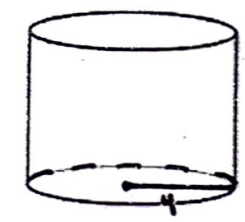
a)



$$L = 2\pi(5)(2) = 20\pi \text{ in}^2$$
$$L + 2B$$
$$T = 20\pi + 2\pi(5)^2 = 20\pi + 50\pi = 70\pi \text{ in}^2$$

$$V = \pi(5)^2(2) = 50\pi \text{ in}^3$$

b)

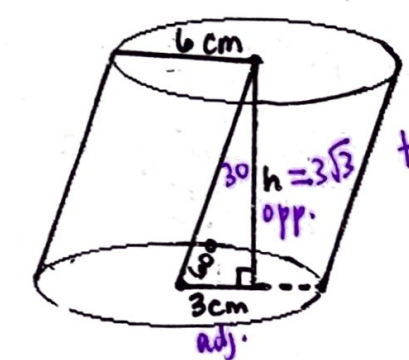


$$L = 2\pi(4)(6) = 48\pi \text{ ft}^2$$
$$T = 48\pi + 2\pi(4)(6) = 48\pi + 32\pi = 80\pi \text{ ft}^2$$

$$V = \pi(4)^2(6) = 96\pi \text{ ft}^3$$

2. Find the volume of the oblique cylinder.

$$V = \pi(6)^2(5.2)$$
$$V = 187.2\pi \text{ cm}^3$$



Find h:
 $\tan 60 = \frac{h}{3}$
 $h = 5.2$

3. The circumference of a cylinder is 15π inches, the height is 6.5 inches and the area of the base is 56.25π square inches. Find the lateral area and total surface area.

need radius!

$$C = 15\pi$$

$$h = 6.5$$

$$B = 56.25\pi$$

$$L = 2\pi r h = \underbrace{15\pi}_{C} \cdot 6.5 = 97.5\pi \text{ in}^2$$

$$T = 97.5\pi + 2(56.25\pi) = 210\pi \text{ in}^2$$

4. Given the volume of a cylinder is 1400π and its lateral area is 280π , find the total surface area of the cylinder.

$$V = 1400\pi = \pi r^2 h$$

$$L = 280\pi = 2\pi r h \rightarrow h = \frac{140}{r}$$

$$B =$$

$$T = ?$$

$$\pi r^2 h = 1400\pi$$

$$\pi r^2 \left(\frac{140}{r}\right) = 1400\pi$$

$$140r = 1400$$

$$r = 10$$

$$T = 280\pi + 2\pi(10)^2 =$$

$$480\pi$$

5. Complete the table.

	Units	Square Units		
	h	r	L	T
1)	6	2	$2\pi(2)(6)$ 24π	$24\pi + 2(\pi \cdot 2^2)$ 32π
2)	5	4	$2\pi(4)(5)$ 40π	$40\pi + 2(\pi \cdot 4^2)$ 72π
3)	4	8	64π	$64\pi + 2\pi(8^2)$ 192π
4)	3.5	1	7π	$7\pi + 2\pi(1^2)$ 9π

$$\rightarrow 3) 64\pi = 2\pi(8)(h)$$

$$h = 4$$

$$4) 7\pi = 2\pi(1)h$$

$$h = 3.5$$

Honors Math 3
Solid Figures Review Warm Up

Name the solid that each net creates. Then state the number of faces, edges and vertices that each solid contains.
When naming the solid, choose from the following:

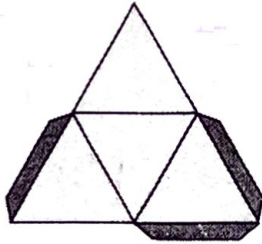
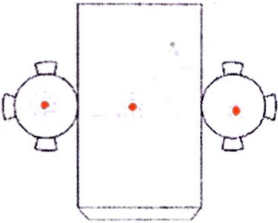
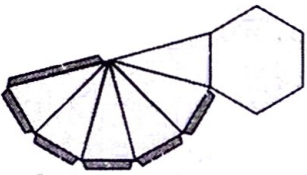
- Cube
- Cylinder
- Hexagonal based pyramid
- Pentagonal based pyramid

- Triangular pyramid
- Pentagonal prism
- Square based pyramid
- Triangular prism

$$F + V - 2 = E$$



Net	Name of Solid	Number of Faces	Number of Edges	Number of Vertices
	Cube	6	12	8
	Pent. Prism	7	15	10
	Pent. base pyramid	6	10	6
	square pyramid	5	8	5
	Δ prism	5	9	6

		F	E	V
	Triangular Pyramid [Tetrahedron]	4	6	4
	Cylinder	3	2	0
	Hex. pyramid	7	12	7