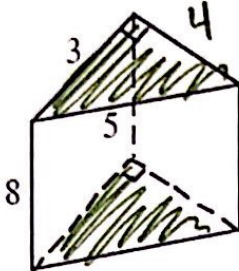


# GUIDED NOTES: Surface Area

Surface Area - the sum of the area of all the shapes that assemble to make a 3D figure

EX1. 

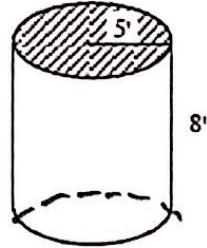
triangular prism  
2 tri  
3 rect

$A_{\Delta} = \frac{bh}{2}$

Pythagorean thrm  
 $a^2 + b^2 = c^2$   
 $3^2 + ?^2 = 5^2$   
 $? = 4$

$2 \left( \frac{3 \cdot 4}{2} \right) + 3(8) + 5(8) + 4(8)$

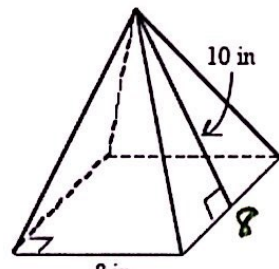
$SA = 2(6) + 24 + 40 + 32$   
 **$SA = 108 \text{ units}^2$**

EX2. 

Cylinder  
1 rect  
2 circles

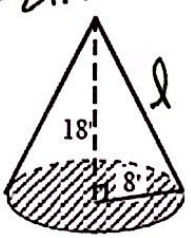
$A_{\circ} = \pi r^2$   
 $C_{\circ} = \pi d = 2\pi r$

$SA = (\pi 5^2) 2 + 8(2\pi 5)$   
 **$SA = 408.407 \text{ ft}^2$**

EX3. 

square pyramid  
1 square  
4 tri

$SA = 8(8) + \left( \frac{8 \cdot 10}{2} \right) 4$   
 **$SA = 224 \text{ in}^2$**

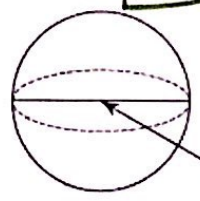
EX4. 

Cone

$8^2 + 18^2 = l^2$   
 $l = 19.698$

← slant height

$SA = \pi r^2 + \pi r l$   
 $SA = \pi 8^2 + \pi 8(19.698)$   
 **$SA = 696.12 \text{ ft}^2$**

EX5. 

Sphere

$d = 12$   
 $r = \frac{12}{2} = 6$

$SA = 4\pi r^2$   
 $SA = 4\pi 6^2$   
 **$SA = 452.389 \text{ mi}^2$**

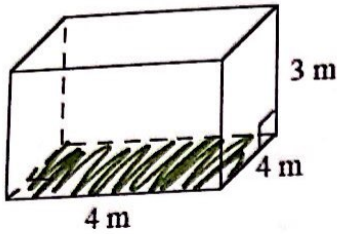
# GUIDED NOTES: Volume

Volume - the amount of one shape stacked up inside of a 3D figure

$$V = lwh$$

$$V = Bh$$

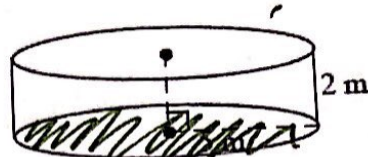
EX1.



$$V = 4(4)(3)$$

$$V = 48m^3$$

EX2.

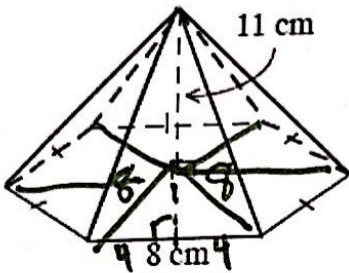


cylinder

$$V = (\pi 5^2) 2$$

$$V = 157.08m^3$$

EX3



hexagonal pyramid

$$4^2 + b^2 = 8^2$$

$$b = 6.928$$

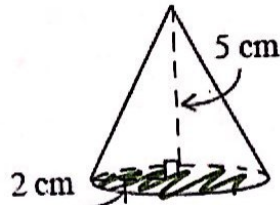
$$A_D = \left( \frac{8 \cdot 6.928}{2} \right) 6$$

$$V = \frac{(166.272) 11}{3}$$

$$V = 609.664 \text{ cm}^3$$

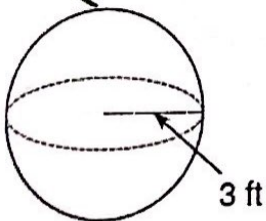
use for all pyramids

EX4.



$$V = \frac{(\pi 2^2) 5}{3}$$

EX5.



Sphere

$$V = \frac{4\pi r^3}{3}$$

$$V = \frac{4\pi 3^3}{3}$$