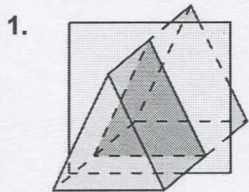


**11.4 Three-Dimensional Figures CYU**

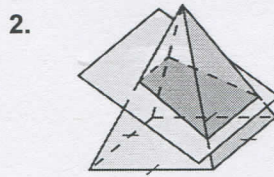
Use when you get it right all by yourself  
*S* Use when you did it all by yourself, but made a silly mistake  
*H* Use when you could do it alone with a little help from teacher or peer  
*G* Use when you completed the problem in a group  
*X* Use when a question was attempted but wrong (get help)  
*N* Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Describing cross sections	1	2	3, 8
Sketch the solid rotation	4	6	5
Describing solid rotations	4	6	5
Polyhedrons		7	
Perimeter			8
Area			8

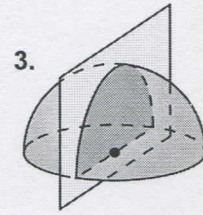
Describe the cross section formed by the intersection of the plane and the solid.



triangle

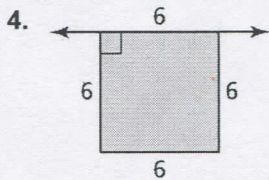


trapezoid

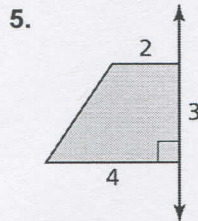


semicircle

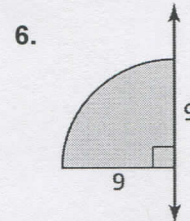
Sketch the solid produced by rotating the figure around the given axis. Then identify and describe the solid.



cylinder  
 $h: 6u$   
 $r: 6u$



frustum  
 $h: 3u$   
 $b_1: 2+2 = 4u$   
 $b_2: 4+4 = 8u$

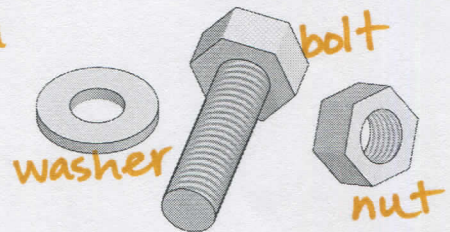


hemisphere  
 $r: 9u$

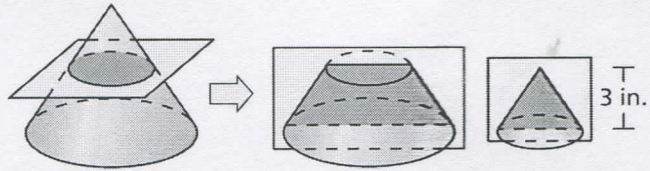
7. Which of the parts shown are polyhedrons? Explain your reasoning.

nut & bolt head  
 - edges, faces, vertices, etc.

washer is circular.



8. A cone with a height of 6 inches and radius of 4 inches is sliced in half by a horizontal plane, creating a circular cross section with a radius of 2 inches. Each piece is then sliced in half by a vertical plane, as shown.



- a. Describe the shape formed by each cross section.

Circle  $\rightarrow$  trapezoid  $\rightarrow$  triangle  
 

- b. What are the perimeters and areas of the cross sections?

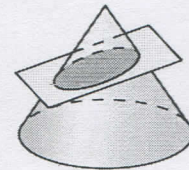
Circle  $P = 4\pi \text{ in}$   
 $A = 4\pi \text{ in}^2$

Trapezoid  $P = 12 + 2\sqrt{13} \text{ in}$   
 $A = 18 \text{ in}^2$

Triangle  $P = 4 + 2\sqrt{13} \text{ in}$   
 $A = 6 \text{ in}^2$

- c. Suppose the horizontal plane is tilted, slicing the original cone as shown at the right. Is the cross section a circle?

NO; there is not a consistent radius.



  $\rightarrow$  ellipse/oval not a circle

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

●	●	●	●	●	●	●	●
1	2	3	4	5	6	7	8
Basic		Intermediate			Advanced		Solved ALL!

