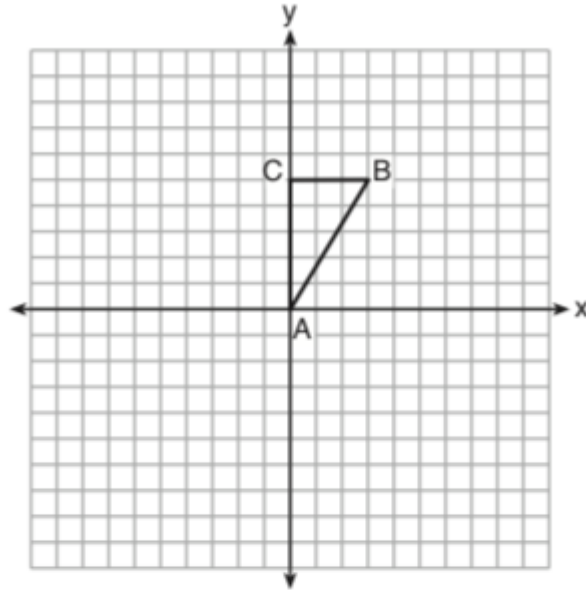


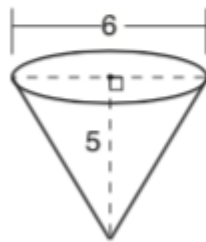
Name:

### 8.6 Trajectory: 3-D Rotations & Cross sections of solids

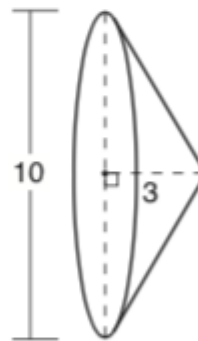
Triangle  $ABC$ , with vertices at  $A(0,0)$ ,  $B(3,5)$ , and  $C(0,5)$ , is graphed on the set of axes shown below.



Which figure is formed when  $\triangle ABC$  is rotated continuously about  $\overline{BC}$ ?



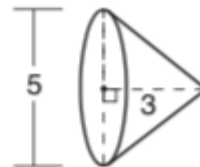
(1)



(3)



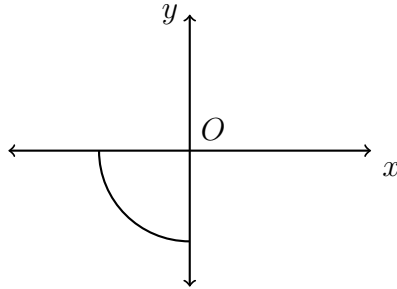
(2)



(4)

1.

2. Circle  $O$  is centered at the origin. In the diagram below, a quarter of circle  $O$  is graphed.



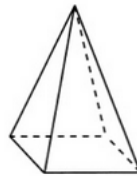
Which three-dimensional figure is generated when the quarter circle is continuously rotated about the  $y$ -axis?

- (a) cone (c) cylinder  
(b) sphere (d) hemisphere
3. A student has a rectangular postcard that he folds in half lengthwise. Next, he rotates it continuously about the folded edge. Which three dimensional object below is generated by this rotation?

- (a) cone



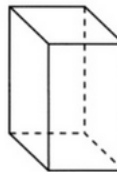
- (b) pyramid



- (c) cylinder



- (d) rectangular prism

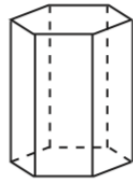


Name:

4. If a rectangle is continuously rotated around one of its sides, what is the three-dimensional figure formed?
- (a) cone (c) cylinder  
(b) sphere (d) rectangular prism
5. Which three-dimensional figure will result when a rectangle 6 inches long and 5 inches wide is continuously rotated about the longer side?
- (a) a rectangular prism with a length of 6 inches, width of 6 inches, and height of 5 inches  
(b) a rectangular prism with a length of 6 inches, width of 5 inches, and height of 5 inches  
(c) a cylinder with a radius of 5 inches and a height of 6 inches  
(d) a cylinder with a radius of 6 inches and a height of 5 inches
6. An isosceles right triangle whose legs measure 6 is continuously rotated about one of its legs to form a three-dimensional object. The three-dimensional object is a
- (a) cylinder with a diameter of 6  
(b) cylinder with a diameter of 12  
(c) cone with a diameter of 6  
(d) cone with a diameter of 12
7. If an equilateral triangle is continuously rotated around one of its medians, which 3-dimensional object is generated?
- (a) cone  
(b) sphere  
(c) pyramid  
(d) prism

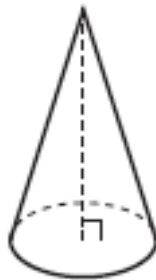
### Cross sections of solids

8. A right hexagonal prism is shown below. A two-dimensional cross section that is perpendicular to the base is taken from the prism.



Which figure describes the two-dimensional cross section?

- |               |              |
|---------------|--------------|
| (a) rectangle | (c) pentagon |
| (b) triangle  | (d) hexagon  |
9. A right cylinder is cut perpendicular to its base. The shape of the cross section is a
- |              |                      |
|--------------|----------------------|
| (a) circle   | (c) rectangle        |
| (b) cylinder | (d) triangular prism |
10. William is drawing pictures of cross sections of the right circular cone below.



Which drawing can *not* be a cross section of a cone?

- (a) square



- (b) triangle



- (c) parabola



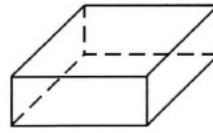
- (d) ellipse



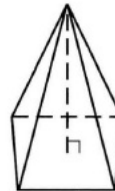
Name:

11. Which figure can have the same cross section as a sphere?

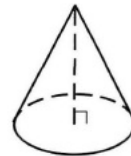
(a) rectangular prism



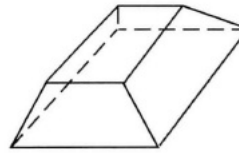
(b) pyramid



(c) cone



(d) truncated pyramid



12. The cross section of a regular pyramid contains the altitude of the pyramid. The shape of this cross section is a

(a) circle

(c) triangle

(b) square

(d) rectangle

13. A two-dimensional cross section is taken of a three-dimensional object. If this cross section is a triangle, what can not be the three-dimensional object?

(a) cylinder

(c) cone

(b) pyramid

(d) rectangular prism

14. A plane intersects a hexagonal prism. The plane is perpendicular to the base of the prism. Which two-dimensional figure is the cross section of the plane intersecting the prism?

(a) rectangle

(c) trapezoid

(b) triangle

(d) hexagon