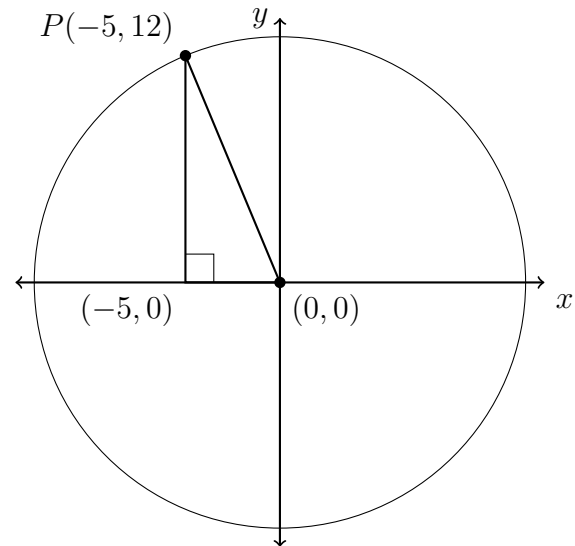


Name:

8.6 Do Now: 3-D rotations & cross sections

1. The point $P(-5, 12)$ is on a circle centered at the origin, as shown below.

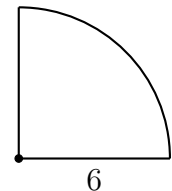
(a) Find the radius of the circle.



(b) Write down the equation of the circle using the form $(x-a)^2 + (y-b)^2 = r^2$.

2. What is the equation of a circle with center $(-3, 7)$ and radius $r = 4$?

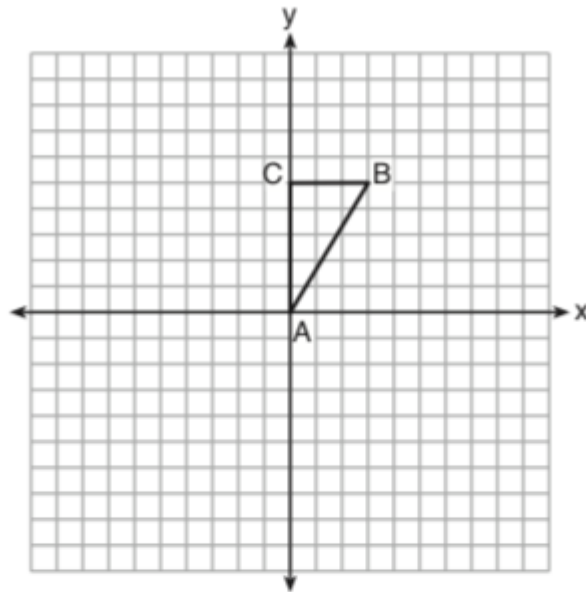
3. Find the area of a quarter circle with radius of 6 centimeters, expressed in terms of π .



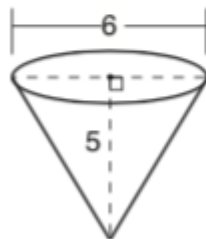
4. A large weather balloon in the shape of a sphere has a radius of 8 meters. Helium filling the balloon has a buoyancy versus air of 1.11 kilograms per cubic meter. Find the lifting power of the balloon.

3-D Rotations & Cross sections of solids

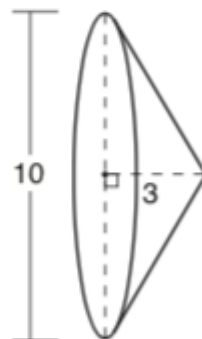
Triangle ABC , with vertices at $A(0,0)$, $B(3,5)$, and $C(0,5)$, is graphed on the set of axes shown below.



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



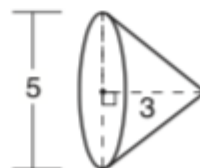
(1)



(3)



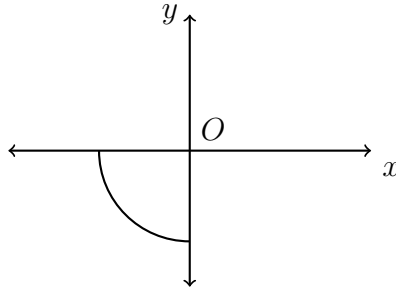
(2)



(4)

Name:

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



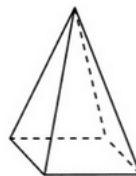
Which three-dimensional figure is generated when the quarter circle is continuously rotated about the y -axis?

- (a) cone (c) cylinder
(b) sphere (d) hemisphere
7. 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



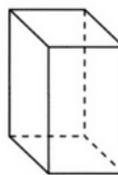
- (b) pyramid



- (c) cylinder

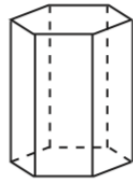


- (d) rectangular prism



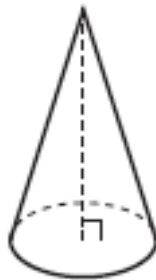
Cross sections of solids

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

