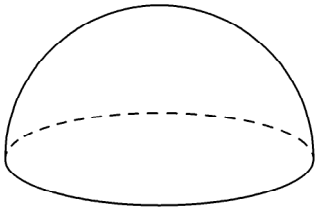
Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Cross Sections

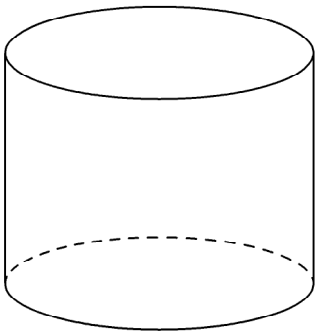
Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Which revolution will generate this hemisphere?

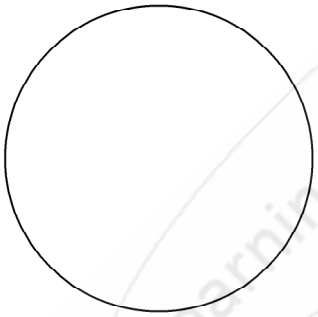


a. Rotate a trapezoid 180° about one of its bases.
b. Rotate a semicircle 180° about its diameter.
c. Rotate a circle 180° about a diameter.
d. Rotate a rectangle 180° about one of its sides.

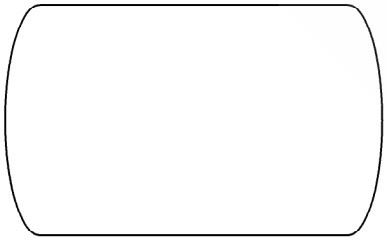
____ 2. Which is the cross section created by a plane perpendicular to the bases of the cylinder?



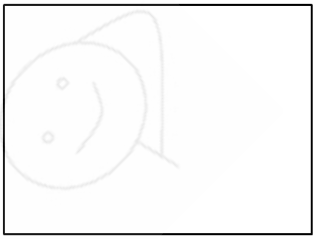
a.



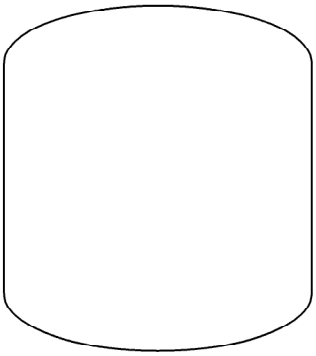
b.



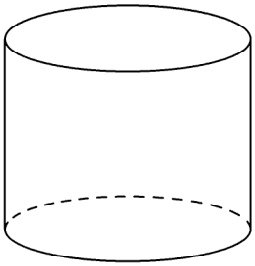
c.



d.



____ 3. Andrea claims that any two cross sections of a cylinder that lie on parallel planes are congruent.



Is Andrea correct? If not, how can she modify her claim to be correct?

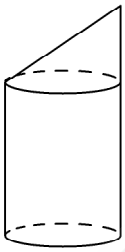
a. No; any two cross sections of a cylinder that lie on planes parallel to the bases of the cylinder are congruent.
b. No; any two cross sections of a cylinder that lie on planes parallel to a plane containing the axis of rotation are congruent.
c. No; any two cross sections of a cylinder that lie on planes containing the axis of rotation are congruent.
d. Andrea is correct.

____ 4. Erin drew a three-dimensional figure with an intersecting plane to show a circular cross section. She then noticed that all cross sections parallel to the one she drew would also be circles. What additional information would allow you to conclude that Erin's figure was a cylinder?

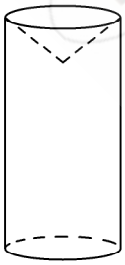
a. The centers of the circular cross sections lie on a line.
b. The circular cross sections are congruent.
c. The circular cross sections are similar but not congruent.
d. The figure also has at least one rectangular cross section.

____ 5. Which solid of revolution is produced by rotating the shape below 360° about the given axis?

a.

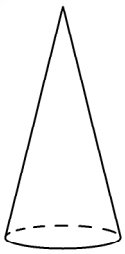


b.



c.

d.



____ 6. Two students created cylinders by rotating a rectangle 360° about an axis. The rectangle and axis of rotation that Lee used are shown in figure 1. The rectangle and axis of rotation that Heather used are shown in figure 2.

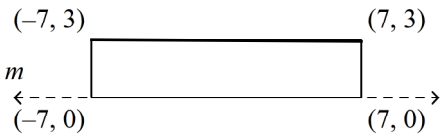


Figure 1

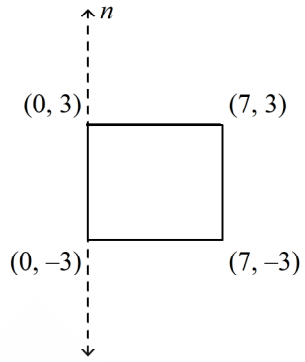


Figure 2

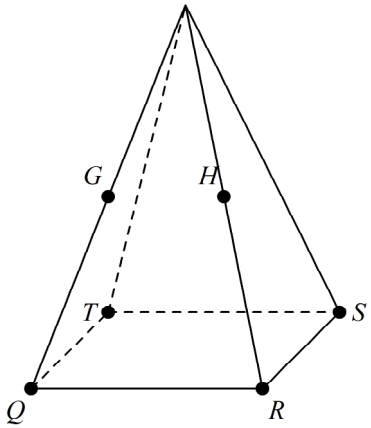
Which is the most accurate description of the cylinders created by Lee and Heather?

a. The cylinders are not congruent, and the bases of Heather's cylinder are on planes parallel to the planes containing the bases of Lee's cylinder.
b. The cylinders are not congruent, and the bases of Heather's cylinder are on planes perpendicular to the planes containing the bases of Lee's cylinder.
c. The cylinders are congruent, and the bases of Heather's cylinder are on planes parallel to the planes containing the bases of Lee's cylinder.
d. The cylinders are congruent, and the bases of Heather's cylinder are on planes perpendicular to the planes containing the bases of Lee's cylinder.

____ 7. Which revolution will generate a cylinder?

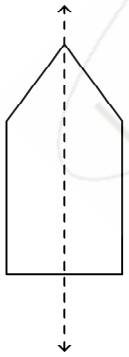
a. Rotate a circle 360° about one of its diameters.
b. Rotate a circle 360° about one of its tangent lines.
c. Rotate a rectangle 360° about one of its sides.
d. Rotate a rectangle 360° about one of its diagonals.

____ 8. Which is the best description of the cross section formed by a plane perpendicular to *QRST* that intersects $\overline{GH}$?



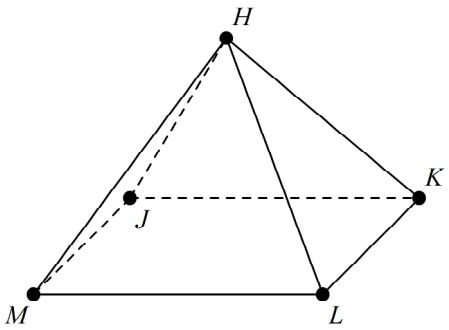
a. rectangle
b. isosceles trapezoid
c. parallelogram
d. rhombus

____ 9. The solid of revolution formed by rotating this pentagon 360° about the given axis is a composition of what two common solids?



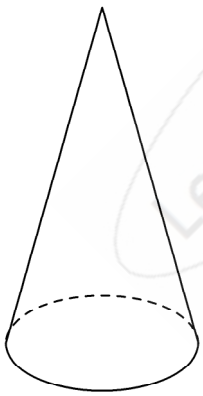
a. two cones
b. a sphere and a cylinder
c. a cone and a sphere
d. a cone and a cylinder

____ 10. A plane parallel to which plane will intersect the square pyramid to form a square cross section?



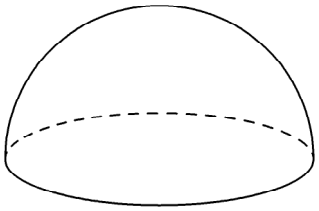
a. plane *HJK*
b. plane *HML*
c. plane *HKM*
d. plane *JML*

____ 11. Two different planes intersect this cone to produce cross sections that are congruent isosceles triangles.



What MUST be true about the two planes?
a. The planes must intersect.
b. The planes must be parallel to the base.
c. The planes must be perpendicular to the base.
d. The planes must be perpendicular to each other.

____ 12. How can you obtain a semicircle from a cross-section of this hemisphere? How many different cross-sections will result in a semicircle?



a. The plane of intersection should be perpendicular to the base. There is only one way to get a semicircular cross-section.
b. The plane of intersection should be perpendicular to the base. There are an infinite number of ways to get a semicircular cross-section.
c. The plane of intersection should be parallel to the base. There is only one way to get a semicircular cross-section.
d. The plane of intersection should be parallel to the base. There are an infinite number of ways to get a semicircular cross-section.

Cross Sections
Answer Section

MULTIPLE CHOICE

1. B
2. C
3. A
4. B
5. B
6. B
7. C
8. B
9. D
10. D
11. C
12. B