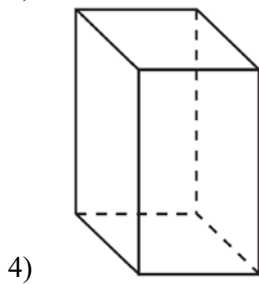
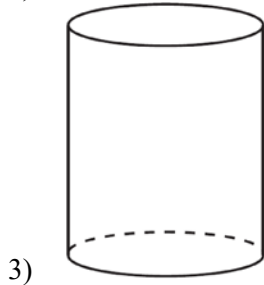
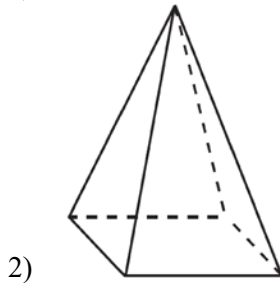
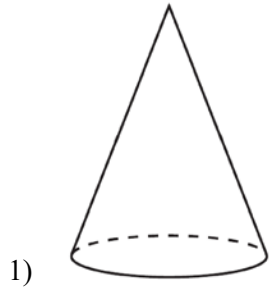


**G.GMD.B.4: Rotations of Two-Dimensional Objects**

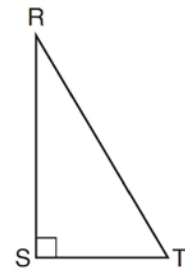
- 1 A student has a rectangular postcard that he folds in half lengthwise. Next, he rotates it continuously about the folded edge. Which three-dimensional object below is generated by this rotation?



- 2 If the rectangle below is continuously rotated about side  $w$ , which solid figure is formed?

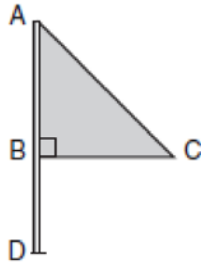


- 1) pyramid  
2) rectangular prism  
3) cone  
4) cylinder
- 3 Which object is formed when right triangle  $RST$  shown below is rotated around leg  $RS$ ?



- 1) a pyramid with a square base  
2) an isosceles triangle  
3) a right triangle  
4) a cone

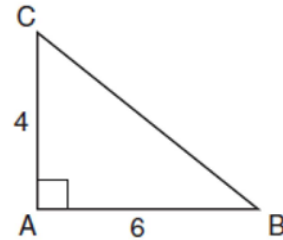
- 4 Triangle  $ABC$  represents a metal flag on pole  $AD$ , as shown in the accompanying diagram. On a windy day the triangle spins around the pole so fast that it looks like a three-dimensional shape.



Which shape would the spinning flag create?

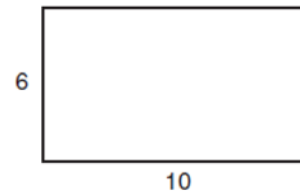
- 1) sphere
  - 2) pyramid
  - 3) right circular cylinder
  - 4) cone
- 5 If an equilateral triangle is continuously rotated around one of its medians, which 3-dimensional object is generated?
- 1) cone
  - 2) pyramid
  - 3) prism
  - 4) sphere

- 6 In the diagram below, right triangle  $ABC$  has legs whose lengths are 4 and 6.



What is the volume of the three-dimensional object formed by continuously rotating the right triangle around  $AB$ ?

- 1)  $32\pi$
  - 2)  $48\pi$
  - 3)  $96\pi$
  - 4)  $144\pi$
- 7 A rectangle whose length and width are 10 and 6, respectively, is shown below. The rectangle is continuously rotated around a straight line to form an object whose volume is  $150\pi$ .



Which line could the rectangle be rotated around?

- 1) a long side
- 2) a short side
- 3) the vertical line of symmetry
- 4) the horizontal line of symmetry

**G.GMD.B.4: Rotations of Two-Dimensional Objects**  
**Answer Section**

1 ANS: 3 REF: 061601geo

2 ANS: 4 REF: 081503geo

3 ANS: 4 REF: 061501geo

4 ANS: 4 REF: 010417a

5 ANS: 1 REF: 081603geo

6 ANS: 1

$$V = \frac{1}{3} \pi(4)^2(6) = 32\pi$$

REF: 061718geo

7 ANS: 3

$$v = \pi r^2 h \quad (1) \quad 6^2 \cdot 10 = 360$$

$$150\pi = \pi r^2 h \quad (2) \quad 10^2 \cdot 6 = 600$$

$$150 = r^2 h \quad (3) \quad 5^2 \cdot 6 = 150$$

$$(4) \quad 3^2 \cdot 10 = 900$$

REF: 081713geo