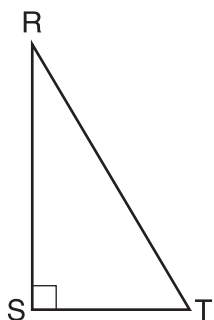


Part I

Answer all 24 questions in this part. Each correct answer will receive 2 credits. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For each statement or question, choose the word or expression that, of those given, best completes the statement or answers the question. [48]

- 1 Which object is formed when right triangle RST shown below is rotated around leg \overline{RS} ?

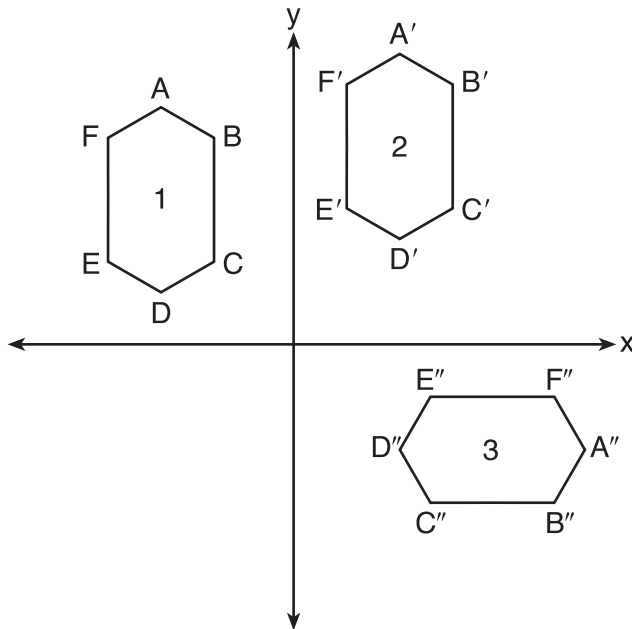


Use this space for computations.

- (1) a pyramid with a square base (3) a right triangle
(2) an isosceles triangle (4) a cone
- 2 The vertices of $\triangle JKL$ have coordinates $J(5,1)$, $K(-2,-3)$, and $L(-4,1)$. Under which transformation is the image $\triangle J'K'L'$ not congruent to $\triangle JKL$?
- (1) a translation of two units to the right and two units down
(2) a counterclockwise rotation of 180 degrees around the origin
(3) a reflection over the x -axis
(4) a dilation with a scale factor of 2 and centered at the origin
- 3 The center of circle Q has coordinates $(3,-2)$. If circle Q passes through $R(7,1)$, what is the length of its diameter?
- (1) 50 (3) 10
(2) 25 (4) 5

Use this space for computations.

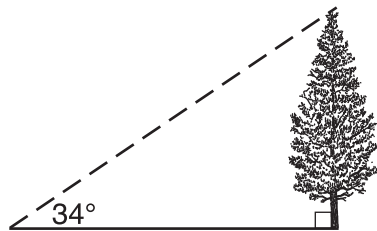
4 In the diagram below, congruent figures 1, 2, and 3 are drawn.



Which sequence of transformations maps figure 1 onto figure 2 and then figure 2 onto figure 3?

- (1) a reflection followed by a translation
- (2) a rotation followed by a translation
- (3) a translation followed by a reflection
- (4) a translation followed by a rotation

5 As shown in the diagram below, the angle of elevation from a point on the ground to the top of the tree is 34° .

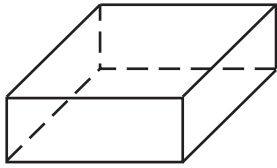


If the point is 20 feet from the base of the tree, what is the height of the tree, to the *nearest tenth of a foot*?

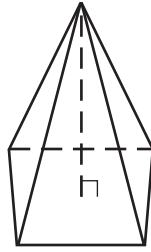
- (1) 29.7
- (2) 16.6
- (3) 13.5
- (4) 11.2

**Use this space for
computations.**

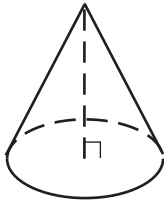
6 Which figure can have the same cross section as a sphere?



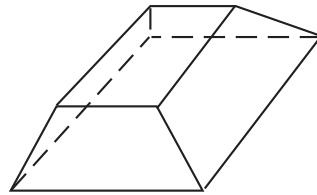
(1)



(3)



(2)



(4)

7 A shipping container is in the shape of a right rectangular prism with a length of 12 feet, a width of 8.5 feet, and a height of 4 feet. The container is completely filled with contents that weigh, on average, 0.25 pound per cubic foot. What is the weight, in pounds, of the contents in the container?

(1) 1,632

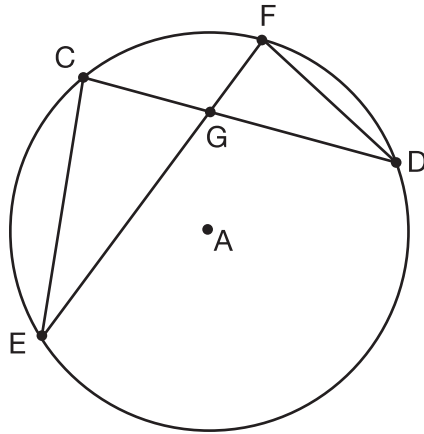
(3) 102

(2) 408

(4) 92

Use this space for
computations.

- 8 In the diagram of circle A shown below, chords \overline{CD} and \overline{EF} intersect at G , and chords \overline{CE} and \overline{FD} are drawn.



Which statement is *not* always true?

- (1) $\overline{CG} \cong \overline{FG}$ (3) $\frac{CE}{EG} = \frac{FD}{DG}$
(2) $\angle CEG \cong \angle FDG$ (4) $\triangle CEG \sim \triangle FDG$
- 9 Which equation represents a line that is perpendicular to the line represented by $2x - y = 7$?
- (1) $y = -\frac{1}{2}x + 6$ (3) $y = -2x + 6$
(2) $y = \frac{1}{2}x + 6$ (4) $y = 2x + 6$