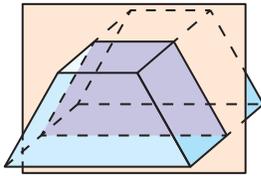


11

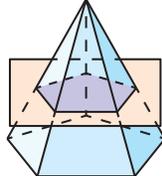
Cumulative Assessment

1. Identify the shape of the cross section formed by the intersection of the plane and the solid.

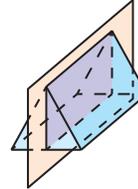
a.



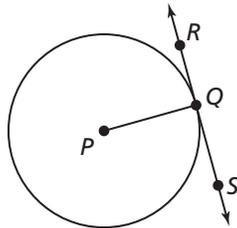
b.



c.



2. In the diagram, \overleftrightarrow{RS} is tangent to $\odot P$ at Q and \overline{PQ} is a radius of $\odot P$. What must be true about \overleftrightarrow{RS} and \overline{PQ} ? Select all that apply.



$$PQ = \frac{1}{2}RS$$

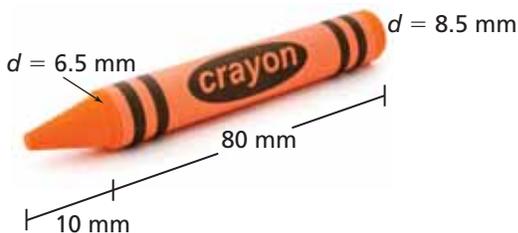
$$PQ = RS$$

\overline{PQ} is tangent to $\odot P$.

$$\overline{PQ} \perp \overleftrightarrow{RS}$$

3. A crayon can be approximated by a composite solid made from a cylinder and a cone. A crayon box is a rectangular prism. The dimensions of a crayon and a crayon box containing 24 crayons are shown.

- Find the volume of a crayon.
- Find the amount of space within the crayon box not taken up by the crayons.



4. What is the equation of the line passing through the point $(2, 5)$ that is parallel to the line $x + \frac{1}{2}y = -1$?

(A) $y = -2x + 9$

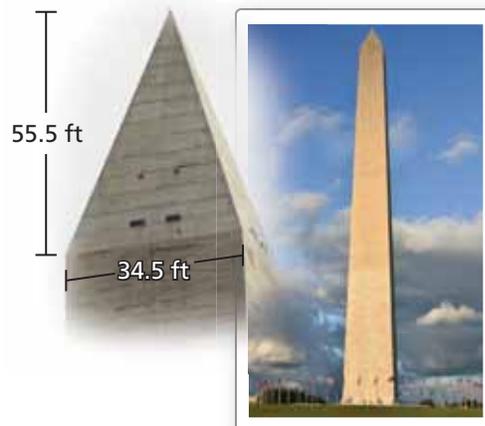
(B) $y = 2x + 1$

(C) $y = \frac{1}{2}x + 4$

(D) $y = -\frac{1}{2}x + 6$

5. The top of the Washington Monument in Washington, D.C., is a square pyramid, called a *pyramidion*. What is the volume of the pyramidion?

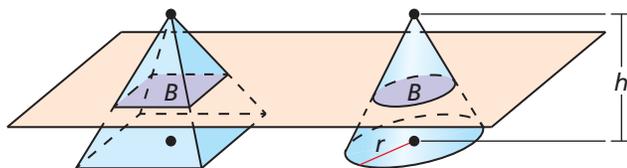
- (A) 22,019.63 ft³
- (B) 172,006.91 ft³
- (C) 66,058.88 ft³
- (D) 207,530.08 ft³



6. Prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.
7. Your friend claims that the house shown can be described as a composite solid made from a rectangular prism and a triangular prism. Do you support your friend's claim? Explain your reasoning.



8. The diagram shows a square pyramid and a cone. Both solids have the same height, h , and the base of the cone has radius r . According to Cavalieri's Principle, the solids will have the same volume if the square base has sides of length ____.



9. About 19,400 people live in a region with a 5-mile radius. Find the population density in people per square mile.

