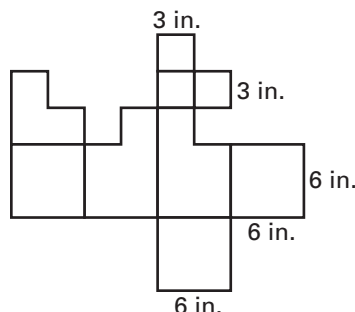


Challenge: Skills and Applications

For use with pages 728–734

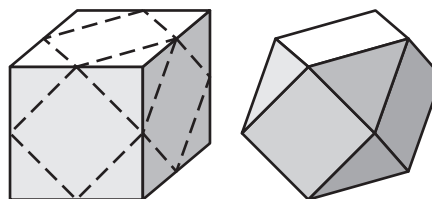
1. Refer to the diagram.

- Sketch the solid that results after the net has been folded.
- Find the surface area of the solid.

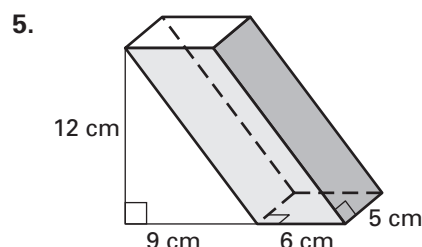
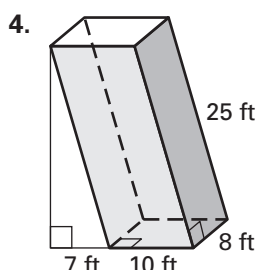
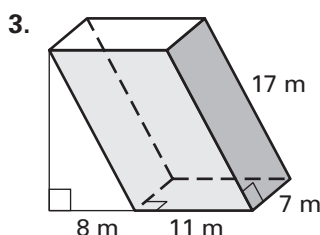


2. A *cuboctahedron* has 6 square faces and 8 equilateral triangle faces. It can be made by slicing off the corners of a cube, as shown.

- Sketch a net for a cuboctahedron.
- If each edge of a cuboctahedron has length 3 cm, find the surface area of the cuboctahedron.



In Exercises 3–5, find the surface area of the oblique prism.



- A right prism has a square base, a surface area of 512 in.^2 , and a height of 12 in. Find the side length of the square base.
- A right circular cylinder has a surface area of $180\pi \text{ mm}^2$ and a base of radius 6 mm. Find the height of the cylinder.
- A right circular cylinder has a surface area of $168\pi \text{ ft}^2$ and a height of 5 ft. Find the radius of the cylinder.
- The diagram at the right shows a net for a cereal box. A small spider is at position *S*, and a bug is at position *B*.
 - According to the net shown, what is the apparent distance between the spider and the bug?
 - Sketch a different net for the same cereal box, showing a shorter path from the spider to the bug. What is the shortest possible distance that the spider would have to walk to get to the bug?

