Enrich

Pythagorean Theorem in 3-D

At the right, you see an illustration of a rectangular prism.
The prism is 3 units wide, 4 units deep, and 12 units high
Use the Pythagorean Theorem to first determine the length of
diagonal $\overline{AC}$, and then to determine the length of diagonal $\overline{AG}$.

$AC^2 = 3^2 + 4^2$ $\qquad\qquad$ $AG^2 = 5^2 + 12^2$

$AC^2 = 9 + 16$ $\qquad\qquad$ $AG^2 = 25 + 144$

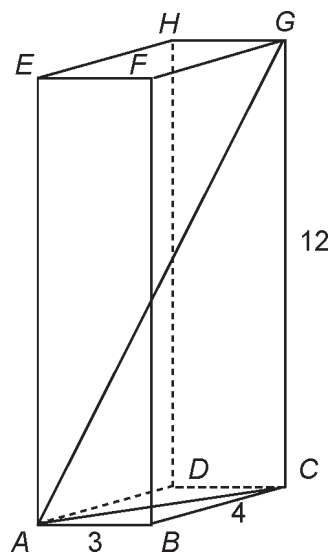$AC^2 = 25$ $\qquad\qquad$ $AG^2 = 169$

$AC^2 = \sqrt{25}$ $\qquad\qquad$ $AG^2 = \sqrt{169}$

$AC = 5$ $\qquad\qquad$ $AG = 13$

The diagonal of the rectangular prism is 13 units.

For each rectangular prism, determine the length of a diagonal. Round to the nearest hundredth.

1.

2.

3.

4.

5.

6.

7.

8.

9.