



Problem of the Week

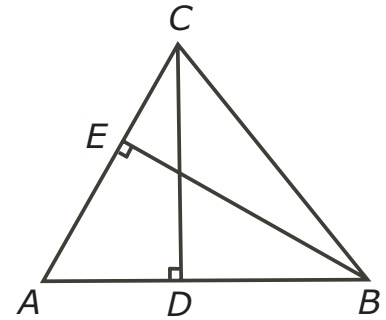
Grade 7 and 8

Always Have A Good Altitude Solution

Problem

An *altitude* is a line segment drawn from a vertex of a triangle to the opposite side such that the line segment is perpendicular to the opposite side.

In $\triangle ABC$, CD and BE are altitudes. $AB = 16$ cm, $AC = 12$ cm and $CD = 6$ cm. Determine the length of BE .



Solution

The area of a triangle is determined using the formula $base \times height \div 2$. The height of the triangle is the length of an altitude and the base of the triangle is the length of the side to which a particular altitude is drawn.

$$\begin{aligned}\text{Area } \triangle ABC &= \frac{(CD) \times (AB)}{2} \\ &= \frac{6 \times 16}{2} \\ &= 48 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{But, Area } \triangle ABC &= \frac{(BE) \times (AC)}{2} \\ 48 &= \frac{(BE) \times 12}{2} \\ 48 &= 6 \times BE \\ 8 \text{ cm} &= BE\end{aligned}$$

Therefore, the length of altitude BE is 8 cm.

