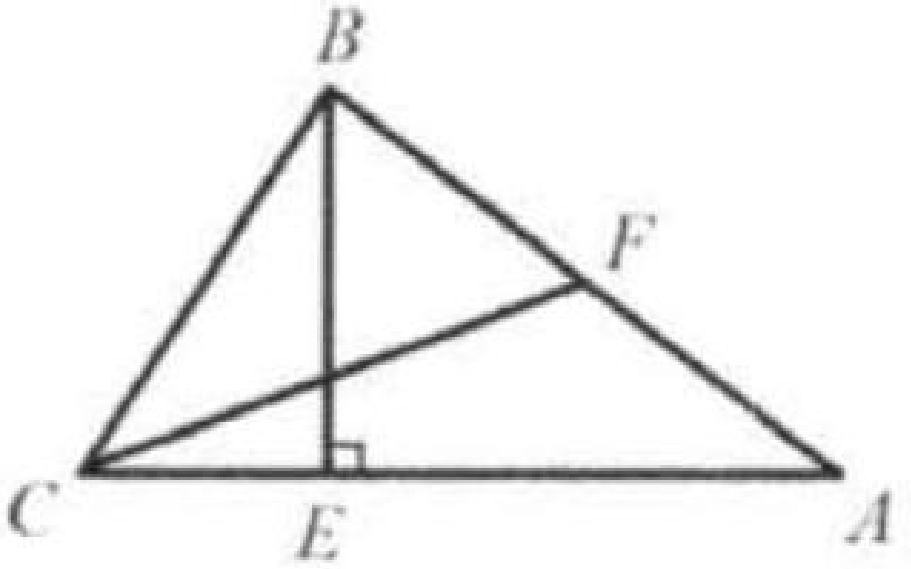
Example 2

In an acute triangle ABC, BE is the altitude and CF is the median. $\angle ACF = 30°$. Which of the following is true about the relationship of BE and CF ?



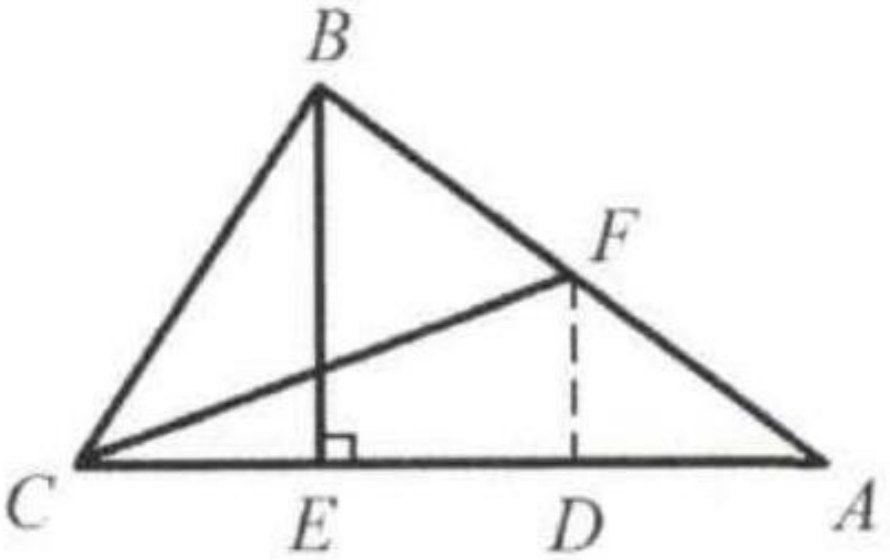
(A) $BE > CF$
(B) $BE = CF$
(C) $BE < CF$
(D)

Solution: (B).

Take D, the midpoint of AE. Connect $FD. FD//BE$ is the midline of triangle ABE, with $FD \perp AC$.

Therefore, $FD = \frac{1}{2}BE$.

In right triangle CDF, since $\angle ACF = 30°$, $FD = \frac{1}{2}CF$.



Thus $FD = \frac{1}{2}BE = \frac{1}{2}CF \quad \Rightarrow \quad BE = CF$.
The answer is (B).