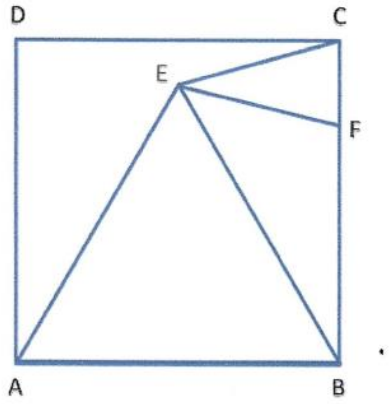
Maths4Fun Question from Ken

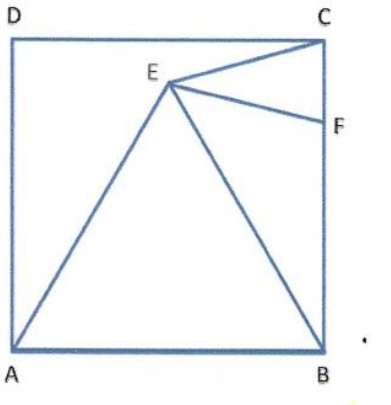


This picture shows an Equilateral Triangle ABE in a Square ABCD.

A point F is on the line BC such that EC = EF.

What is the angle BEF?

Answer to Math4Fun question



$\angle EBC = 90° - 60° = 30°$.

EB = AB = BC so, triangle EBC is isosceles.

Hence $\angle BCE = ½ (180 - 30)° = 75°$

EC = EF, so triangle EFC is isosceles and $\angle EFC = 75°$

$\angle EFB = (180 - 75)° = 105°$ and $\angle FBE = 30°$,

so $\angle BEF = (180 - 105 - 30)° = 45°$