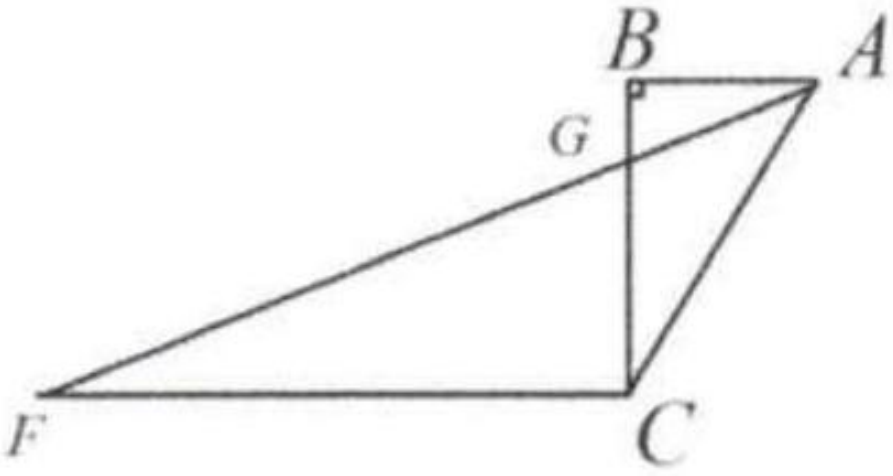
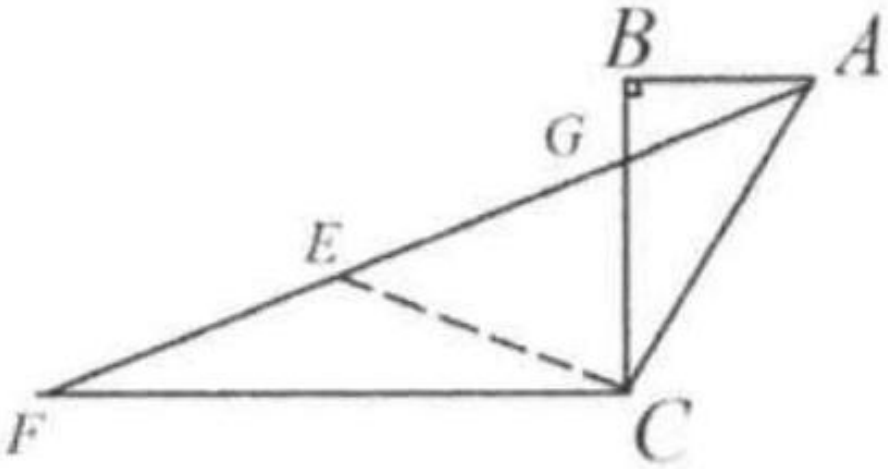
Example 3

In right $\triangle ABC, \angle B = 90°, \angle BAC = 78°$. Draw $CF//AB$. Connect AF and BC. BC and AF meet at G. If $FG = 2AC$, find $\angle BAG$.



Solution: 26°.
Since $AB//CF, \angle FCB = 90°. \triangle FBC$ is a right triangle.
Take E, the midpoint of FG. Connect EC.
$EC = \frac{1}{2}FG = AC$.
Thus $\angle EAC = \angle AEC = \angle F + \angle ECF = 2\angle F$.
Let $\angle BAG = x. \angle F = x$.



So, $x + 2x = 78^\circ \quad \Rightarrow \quad x = 26^\circ$.