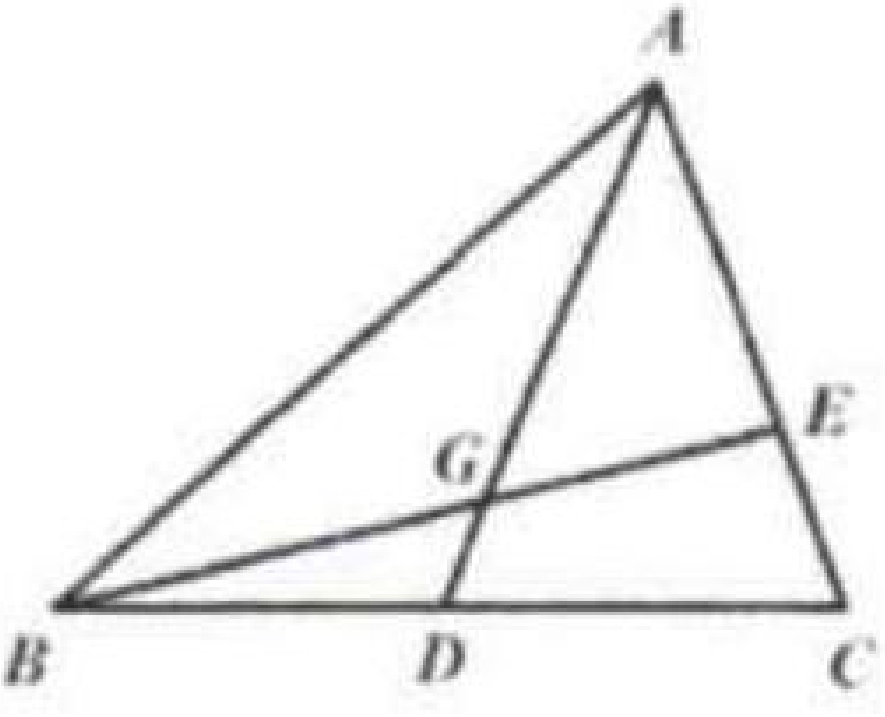
Example 4

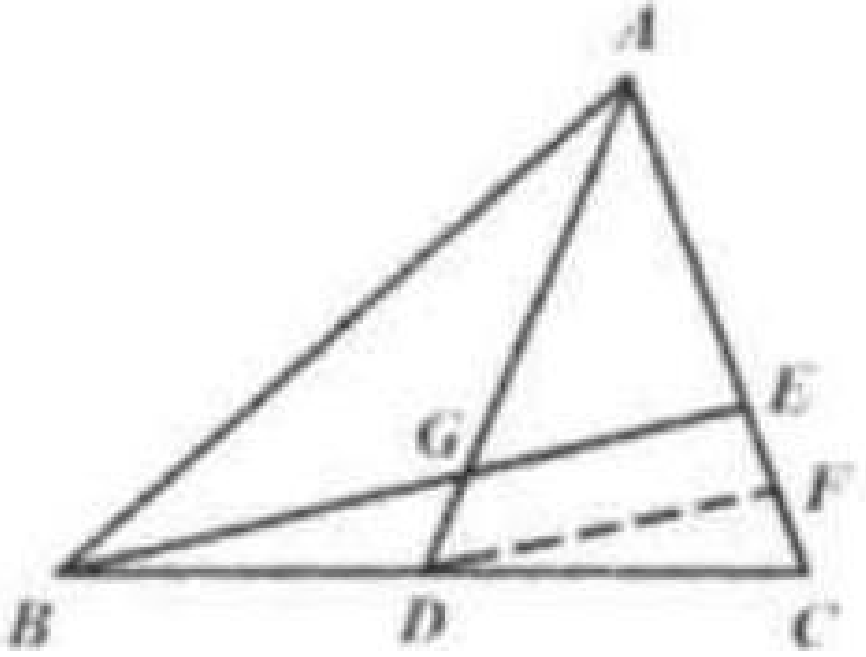
As shown in the figure, D is the midpoint of BC of triangle ABC. E is on AC such that $AC = 3CE$. BE and AD meets at G. Find the ratio $AG : GD$.

Solution: 4:1.



Draw $DF//BE$ through and meets AC at F. Since D is the midpoint of BC, F is the midpoint of EC. Since $AC = 3CE, AE = 2CE = 4EF$.

We also know that $DF//BE$. So $AG : GD = AE : EF = 4 : 1$.


A
E
G
F
B
D
C