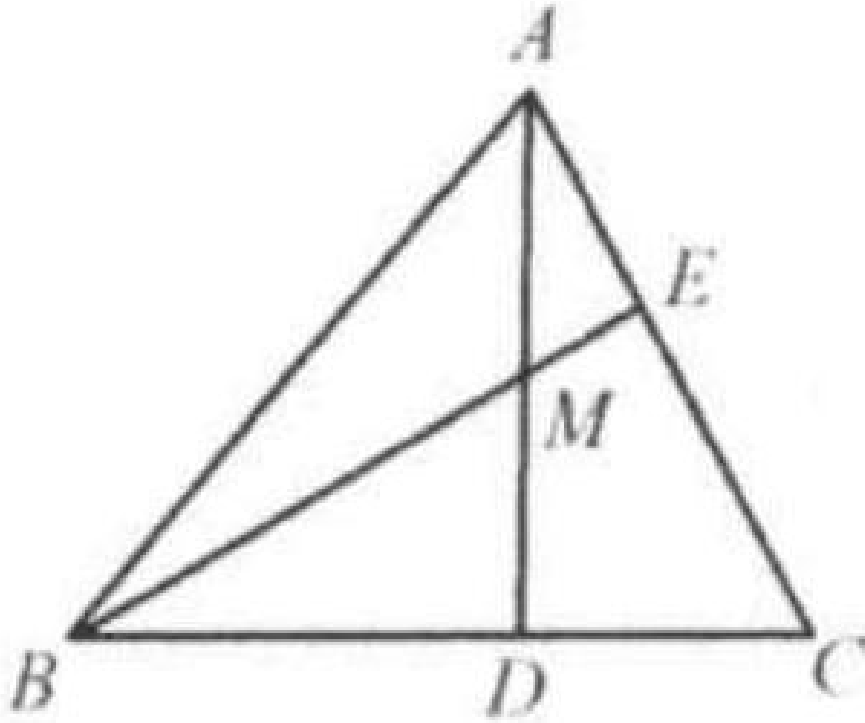


Problem 6

Problem

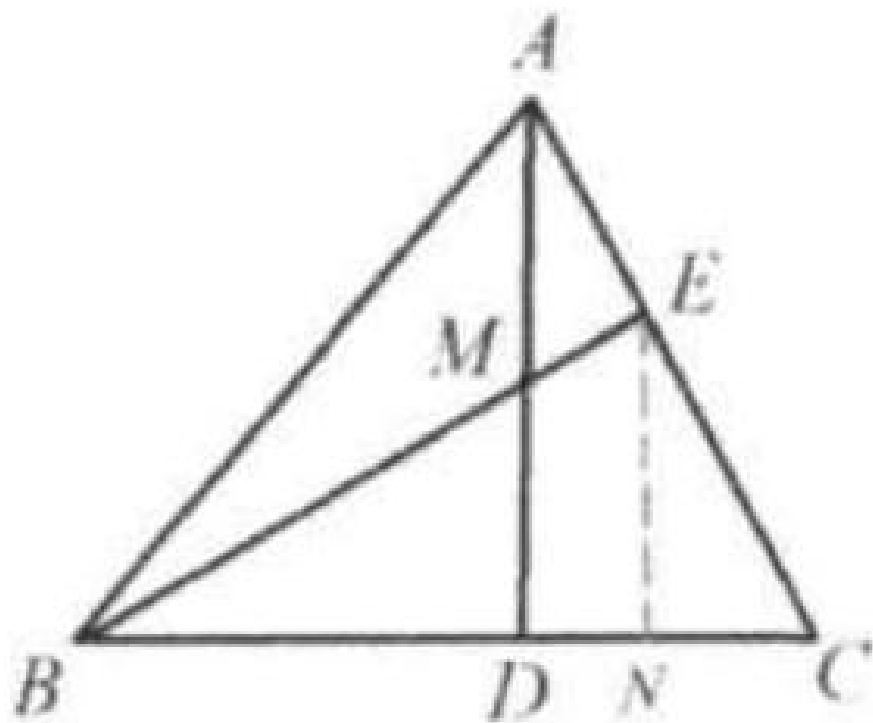
In triangle ABC , a point D is taken on AB and a point E is taken on AC such that $BD : DC = 3 : 2$, and $AE : EC = 3 : 4$. AD and BE intersect at M . Find the area of triangle AEM if the area of triangle ABC is 1 .



Solution

Draw $EN \parallel AD$ to meet BC at N .
Since $BD : DC = 3 : 2$ and $AE : EC = 3 : 4$, $NC : DN : BD = 8 : 6 : 21$. So
 $EM : MB = 6 : 21 = 2 : 7$.

We know that $\frac{S_{\triangle ABE}}{S_{\triangle ABC}} = \frac{3}{3+4} \Rightarrow S_{\triangle ABE} = \frac{3}{7}S_{\triangle ABC} = \frac{3}{7}$.



$$S_{\triangle AEM} = \frac{2}{9}S_{\triangle ABE} = \frac{2}{9} \times \frac{3}{7} = \frac{2}{21}$$