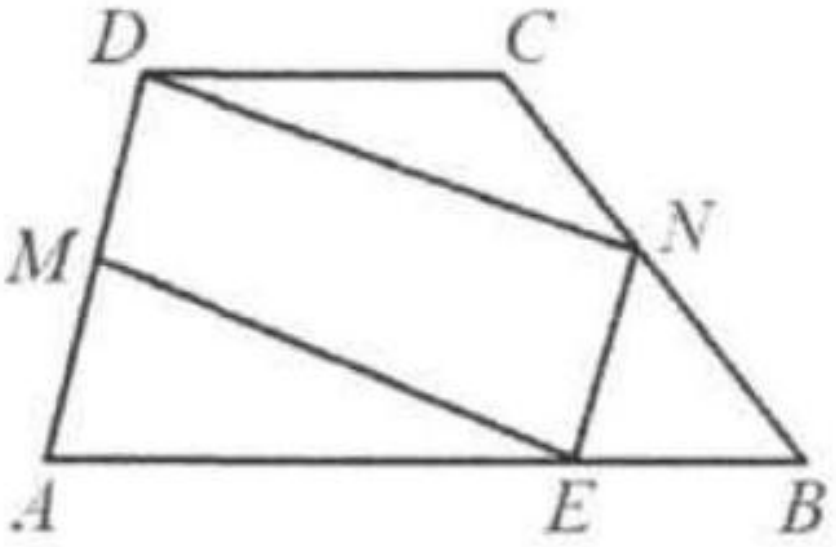
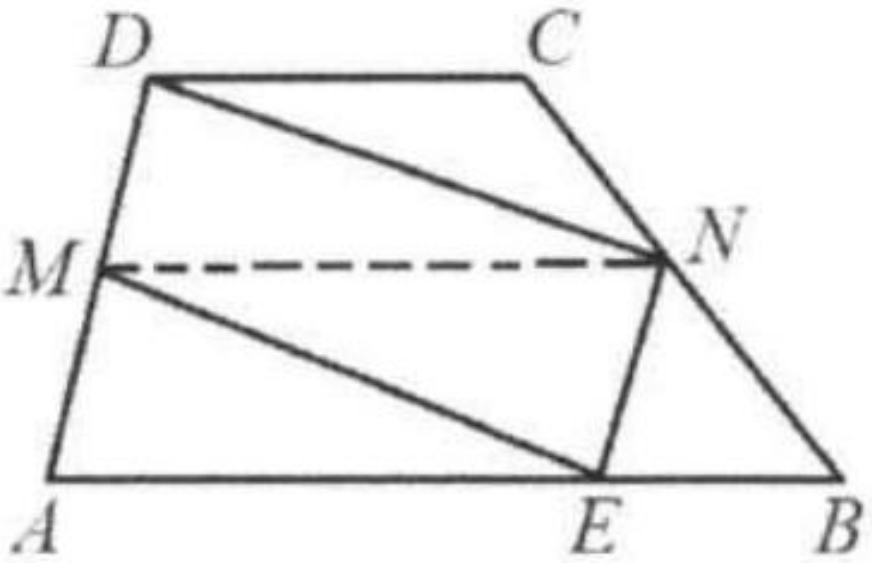
Problem

$ABCD$ is a trapezoid with $AB//DC.M$ and N are midpoints of AD, BC, respectively. $ME//DN$. ME meets AB at E. Show that $NE = DM$.



Solution

Connect $MN.MN$ is the median of the trapezoid $ABCD$. So
$MN//AB.\angle DMN = \angle MAE.$
Since $ME//DN, \angle MDN = \angle AME.$
We also know that $DM = MA$. Thus $\triangle DMN \cong \triangle MAE$. So $DN = ME$.
We also know that $ME//DN$. Therefore $DNEM$ is a



parallelogram. Thus $NE = DM$.