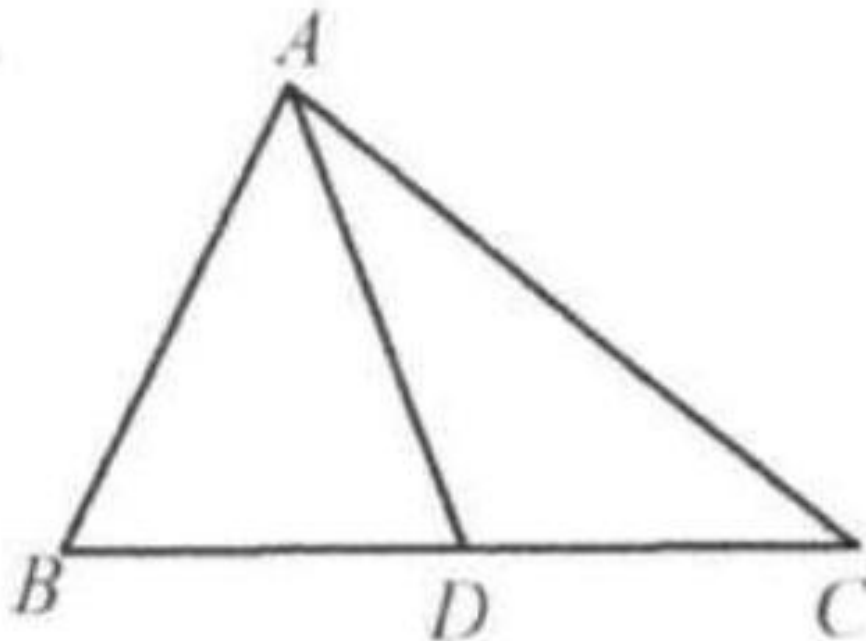


Problem

In $\triangle ABC$, $AB = 5$, $AC = 9$. AD is the median on side BC . How many integer values are there of AD ?



Solution

4. Extend AD to E such that $AD = DE$.

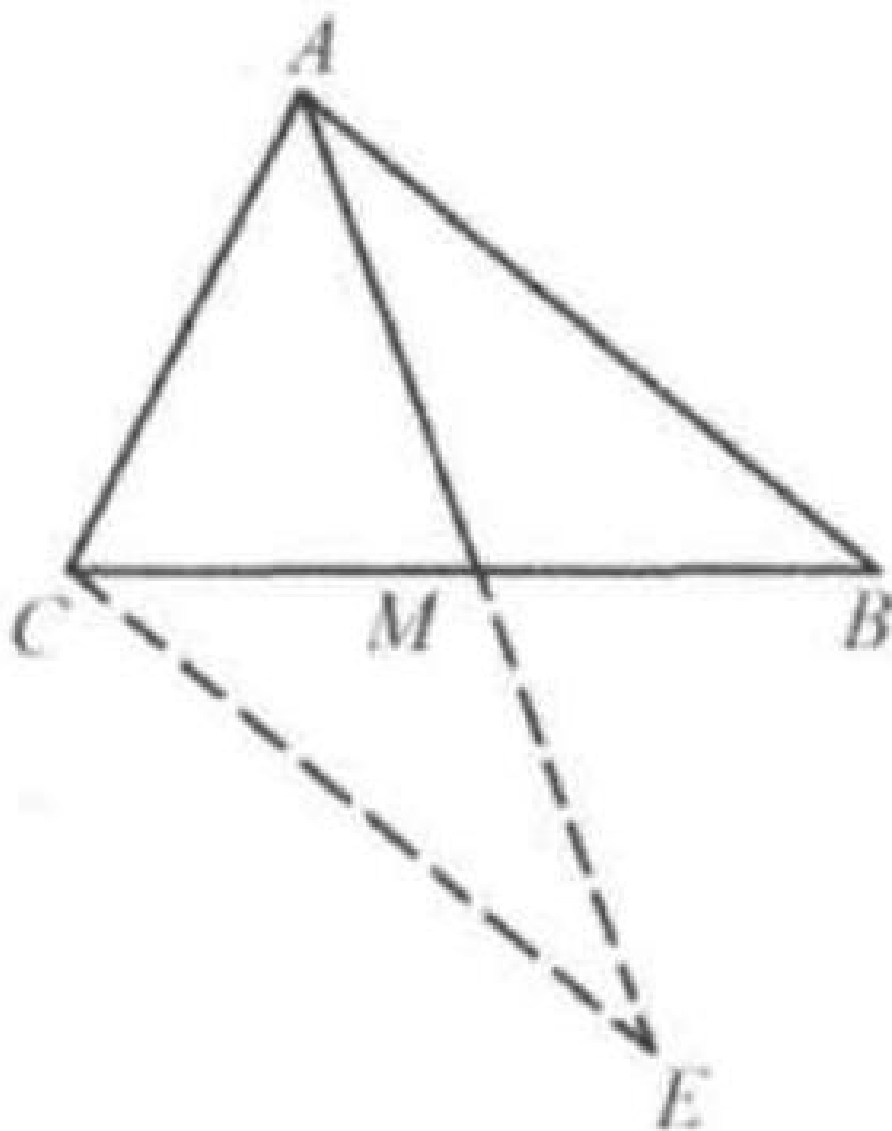
Connect BE .

Since $DE = AD$, $\angle BDE = \angle CDA$. $BD = DC$.

Thus $\triangle BDE \cong \triangle CDA$, $BE = AC = 9$.

By the triangle inequality theorem,

$$9 - 5 < AE < 9 + 5 \Rightarrow 4 < 2AD < 14 \Rightarrow 2 < AD <$$



E
7.

There are four possible values: 3, 4, 5, and 6 .