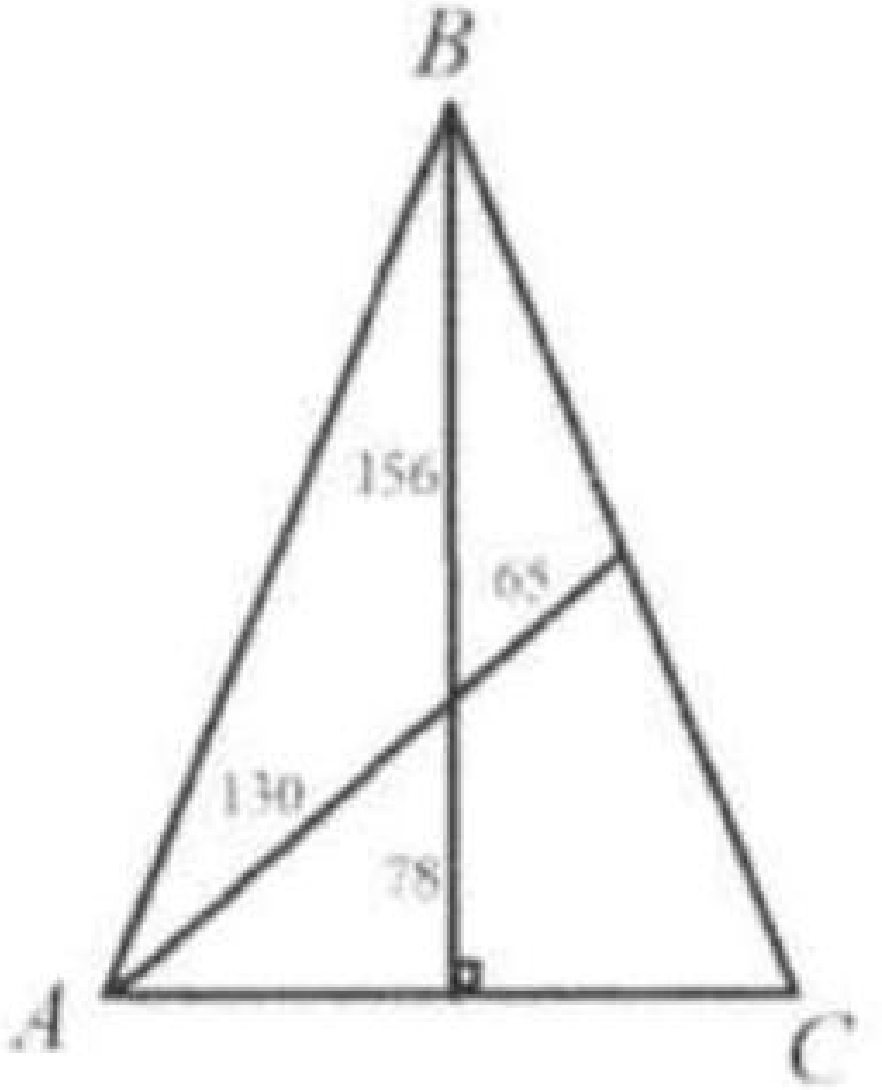
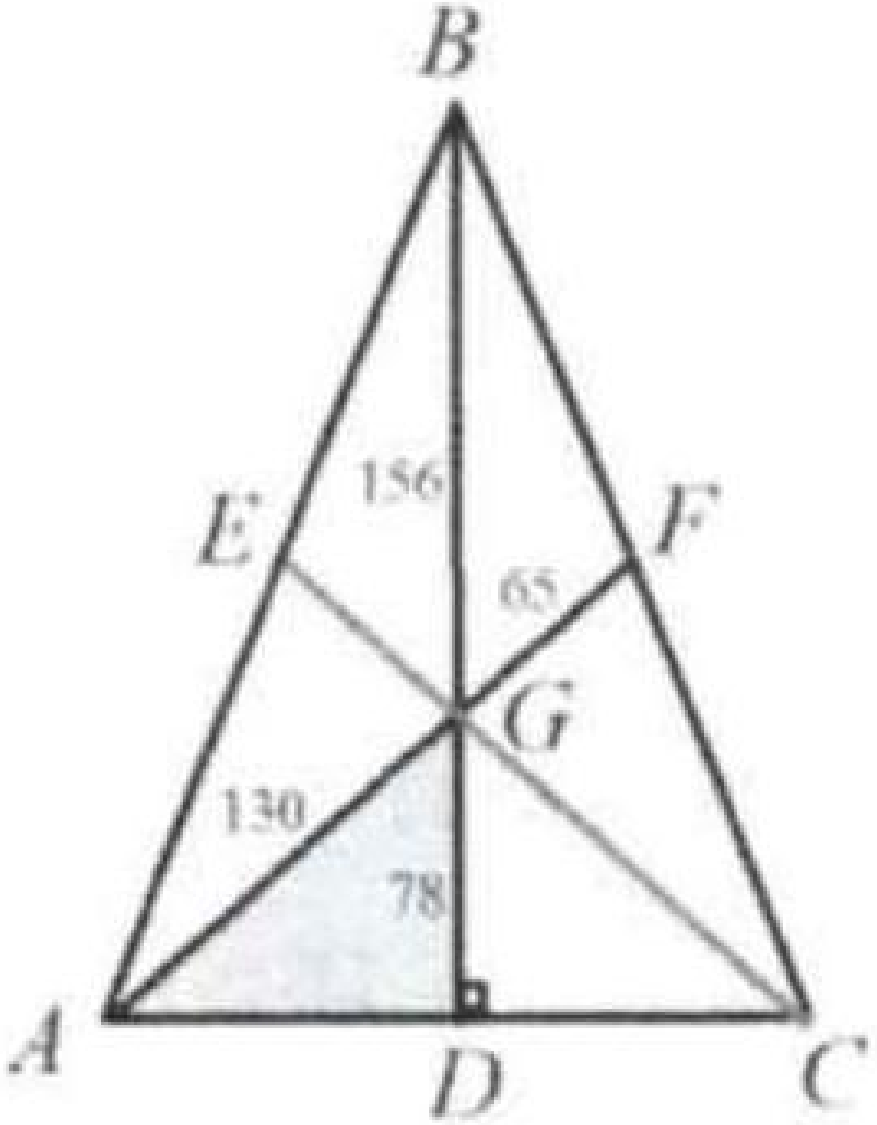
Example 4

(NYML) 234 is the inch-length of the altitude to base AC of isosceles triangle ABC. If the inch-length of the median to BC is 195 , find the number of square inches in the area of triangular region ABC.

Solution: 24336. We draw the third median CE.



AF, CE, and BD are three medians. They meet at G.
$GD = \frac{1}{3}BD = \frac{1}{3} \times 234 = 78. AG = \frac{2}{3}AF = \frac{2}{3} \times 195 = 130.$
Triangle ADG is a 3-4-5 right triangle $(3 \times 26, 4 \times 26, 5 \times 26)$ and $AD = 104$.
$S_{\triangle ADG} = \frac{78 \times 104}{2} = 4056$



$S_{\triangle ABC} = 6S_{\triangle ADG} = 6 \times 4056 = 24336.$