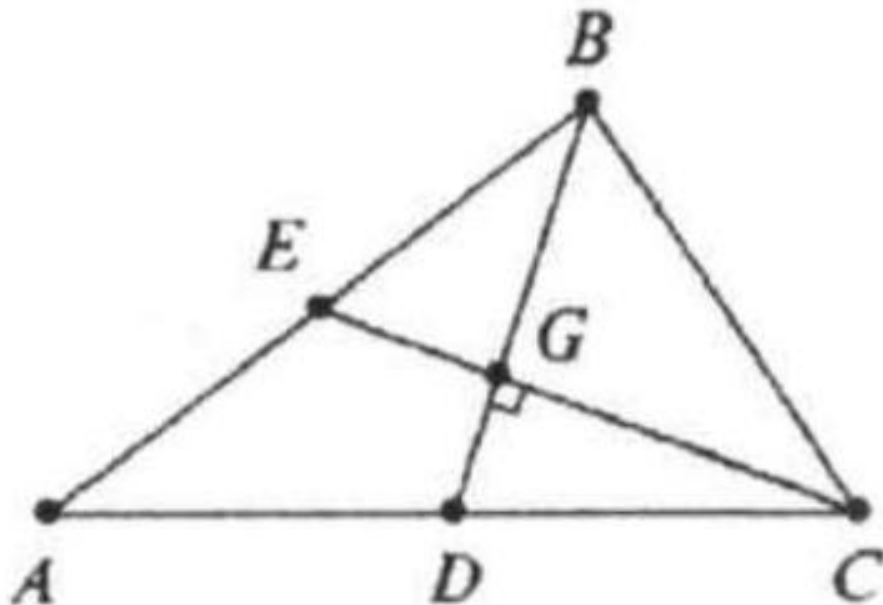


## Problem

Medians  $BD$  and  $CE$  of a triangle  $ABC$  are perpendicular,  $CE = 24$  and the area of triangle  $ABC$  is 288 . Find the length of  $BD$ .

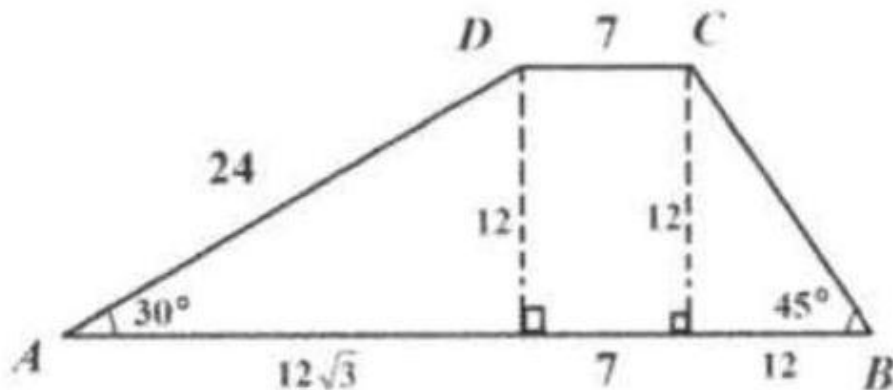


## Solution

(D).

Draw perpendiculars from  $D$  and  $C$  to  $AB$ .

We observe a  $30^\circ - 60^\circ - 90^\circ$  right triangle (with the sides 12,  $12\sqrt{3}$ , and 24 )  
and a  $45^\circ - 45^\circ - 90^\circ$  right triangle (with the sides 12, 12,  $12\sqrt{2}$  ).



$$\text{So } AB = 7 + 12 + 12\sqrt{3} = 19 + 12\sqrt{3}.$$