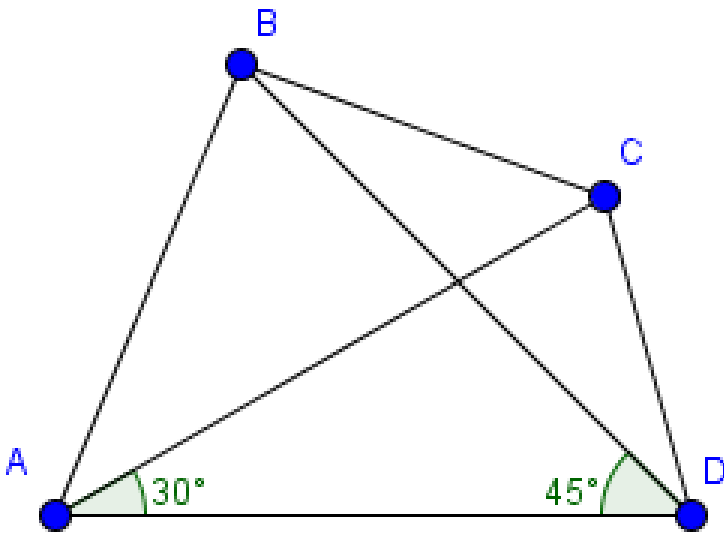


Problem 41



Triangles DAC , ADB are Isosceles with vertex angles at A , D respectively. If $AD = 10$, Find BC .

Answer

6.0940

Explanation

Place the origin at A . The coordinates for B are therefore $(10 - 10 \cos(45^\circ), 10 \sin(45^\circ)) \Rightarrow (10 - 5\sqrt{2}, 5\sqrt{2})$ and C are $(10 \cos(30^\circ), 10 \sin(30^\circ)) \Rightarrow (5\sqrt{3}, 5)$

Using the distance formula, we have:

$$d(B, C) = \sqrt{(10 - 5\sqrt{2} - 5\sqrt{3})^2 + (5\sqrt{2} - 5)^2} \approx 6.0940$$