8.G, G-SRT Points from Directions

Task

Point \( B \) is due east of point \( A \). Point \( C \) is due north of point \( B \). The distance between points \( A \) and \( C \) is \( 10\sqrt{2} \) meters, and \( \angle BAC = 45^\circ \). Point \( D \) is 20 meters due north of point \( C \). The distance \( |AD| \) is between which two integers?