Answer on Question#38391, Math, Vector Calculus
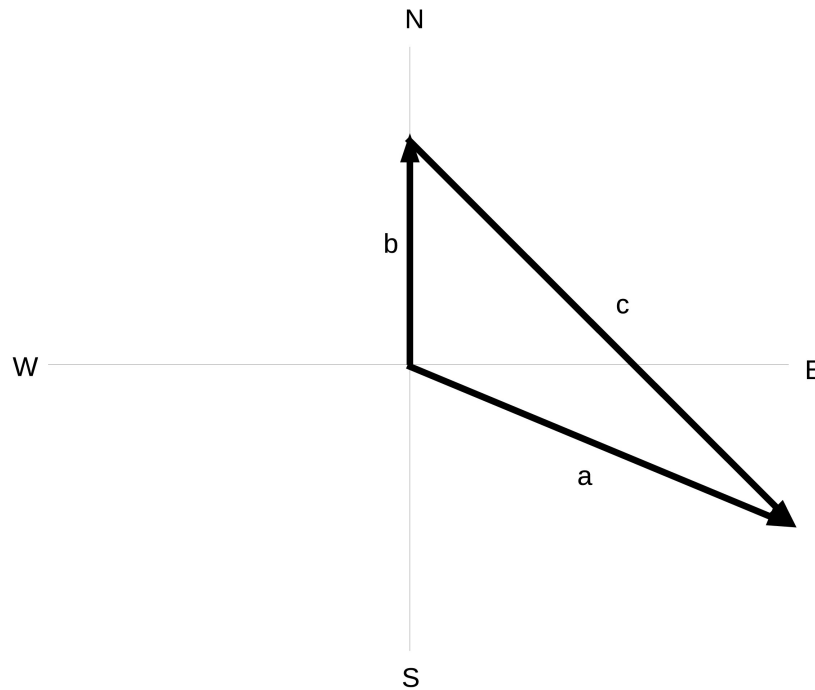
The picture of movement looks approximately like this:

$b=3\,km$, $c=10\,km$, $a-?$

The angle between b and c is 45 degrees. Hence, let us use cosine theorem to calculate a :
$a^2=b^2+c^2-2\,b\,c\sin(45)=3^2+10^2-2\cdot3\cdot10\cdot\dfrac{1}{\sqrt{2}}=109-30\sqrt{2}$. Thus, $a=\sqrt{109-30\sqrt{2}}\approx8.159\,km$.