Answer on Question #70871 – Math – Trigonometry

Question

An airplane takes off at a speed S of 235235 mph at an angle of 1616degrees° with the horizontal. Resolve the vector S into components.

Solution

One turnover is 360 degrees, so 1616 ° = 4 × 360° + 176°; |S| = 235235.

Let CB be perpendicular to AB and CD be perpendicular to DA.

Then AD will be S (x), a horizontal projection of S.

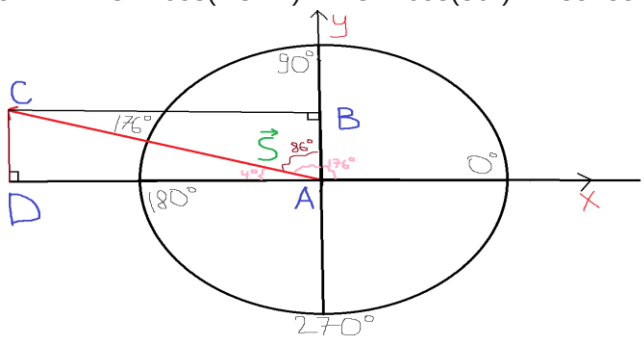
AB will be S (y), a vertical projection of S.

cos(∠CAD) = AD / AC.

So S (x) =AD = AC × cos(∠CAD) = AC × cos (4°) = 235235 × 0.9975640 = 234661.979 (mph);

cos(∠CAB) = AB / AC.

So AB = AC × cos(∠CAB) = AC × cos(86°) = 235235 × 0.0697 = 16409.16(mph)



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