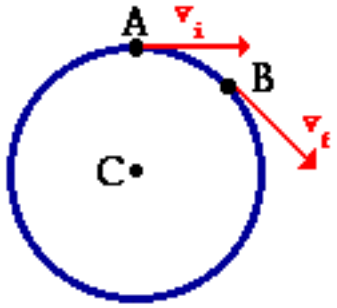
Answer on Question #51855 – Physics - Mechanics | Kinematics | Dynamics

Which of the follwing statements is correcct?
An object can have a constant velocity even though its speed is changing
An object can have a constant speed even though its velocty is changing
An object can have zero acceleration and eventually reverses its direction
An object can have constant velocity even though its acceleration is not zero

Solution:
Second statement is correct one: an object can have a constant speed even though its velocty is changing

Velocity is a vector quantity while speed is scalar. Vector means it must have magnitude and direction, while scalar only needs magnitude.

If a car is moving in a circle it could have a constant speed but because it keeps changing direction (moving in a circle) it would have a changing velocity.



$$|\vec{v_i}| = |\vec{v_f}| = const$$

Answer: An object can have a constant speed even though its velocty is changing