Answer on Question #47322, Physics, Mechanics | Kinematics | Dynamics

Question:

a particle moves along the side of a square of length 'l' starting from A and reaches the opposite corner C by travelling from A to B and from B to C.if the time taken is 't',the average velocity of the particle is?

Answer:

Average velocity equals:

$$|\overrightarrow{v_a}| = \frac{S}{t}$$

where S is total displacement, t is total time.

Total displacement equals (using Pythagorean theorem):

$$S = \sqrt{l^2 + l^2} = \sqrt{2}l$$

$$|\overrightarrow{v_a}| = \frac{\sqrt{2}l}{t}$$

Answer: $\frac{\sqrt{2}l}{t}$