Answer on Question #54194-Physics-Mechanics-Kinematics-Dynamics

An object travels with velocity v = 4.0 meters/second and it makes an angle of 60.0° with the positive direction of the x-axis. Calculate the possible values of v_x.

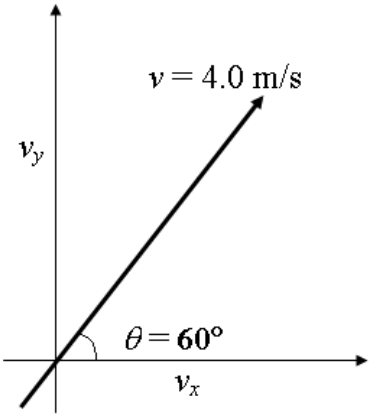
A. -3.5 meters/second and +3.5 meters/second

B. -2.0 meters/second and +2.0 meters/second

C. -2.5 meters/second and +2.5 meters/second

D. -3.0 meters/second and +3.0 meters/second

Solution



The magnitude of v_x is

$$v_x = v\cos 60.0° = 4.0\frac{\text{meters}}{\text{second}}\cdot\frac{1}{2} = 2.0\frac{\text{meters}}{\text{second}}.$$

Thus, the possible values of v_x are $\pm 2.0\frac{\text{meters}}{\text{second}}$.

Answer: B. -2.0 meters/second and +2.0 meters/second.