

Relative Velocity

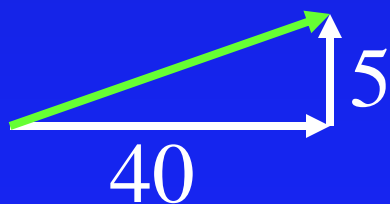
You are on a train traveling 40 mph North. If you walk 5 mph sideways across the car, what is your speed relative to the ground?

A) < 40 mph

B) 40 mph

C) >40 mph

$$40 \text{ mph N} + 5 \text{ mph W} = 41 \text{ mph N}$$



$$|v| = \sqrt{40^2 + 5^2}$$