Answer on Question #48144 – Physics – Other

Jake walks east through a passenger car on a train that moves 10 m/s in the same direction. Jake's speed relative to the car is 2 m/s. Jake's speed relative to an observer at rest outside the train is?

Solution:

$v_t = 10\frac{m}{s} - \text{velocity of the train;}$
$v_{J,c} = 2\frac{m}{s} - \text{Jake'speed relative to the car;}$
$v_c - \text{Jake'speed relative to the train;}$
Answer:
Formula for the relative speed:

$$v_{J,t} = v_J - v_t$$
$$v_J = v_{J,t} + v_t = 10\frac{m}{s} + 2\frac{m}{s} = 12\frac{m}{s}$$

Answer: Jake's speed relative to the observer is equal to $12\frac{m}{s}$