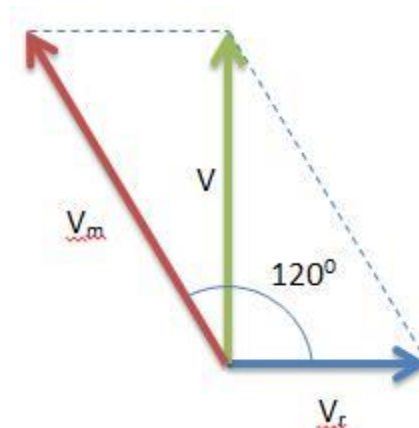


Answer on Question #60205-Physics-Mechanics-Relativity

A person aiming to reach exactly opposite point on the bank of a stream is swimming with a speed of 0.5 m/s at an angle of 120 degree with the direction of the flow of the water. The speed of water in the stream is

- (1) 0.25 m/s
- (2) 0.5 m/s
- (3) 1.0 m/s
- (4) 0.433 m/s

Solution



Here, V_r is the velocity of the river w.r.t. ground, V_m is the velocity of the man w.r.t. river, V the velocity of the man w.r.t. ground.

$$\tan 90 = \frac{V_m \sin 120}{V_r + V_m \cos 120}$$

$$V_r = -V_m \cos 120 = -(0.5)(-0.5) = 0.25 \frac{m}{s}$$

Answer: (1) 0.25 m/s.