

1. The boat and the stream are moving in the same direction, and the speeds involved are well below the speed of light, so we may use simple vector addition of the velocities to find the velocity of the boat with respect to the bank.

$$\mathbf{v}_{be} = \mathbf{v}_{bw} + \mathbf{v}_{we}$$

$$v_{be} = 4 \text{ m/s} + 10 \text{ m/s} = 14 \text{ m/s}$$

Thus the boat moves at 14 m / s with respect to the bank in the downstream direction.