**Crossing the River: Relative Velocity Notes**

1. **A boat is rowed at 8 m/s directly across a river that is flowing downstream at 3 m/s. The river is 56 m wide.**
2. What is the speed of the boat as seen from the bank of the river?
3. How long will it take the boat to get across the river?
4. How far downstream will the boat land?
5. At what angle should the boat head if it wants to end up directly across the river?
6. **A tourist wishes to cross a river that is 1.5 km wide and flows with a speed of 5 km/h parallel to its banks. The tourist uses a small powerboat that moves at a maximum speed of 12 km/h with respect to the water.**
7. If the tourist heads directly across, how far downstream will he end up?
8. In which direction should he head to end up directly across from where he started?
9. How long will it take to cross the river in the first scenario?
10. How long will it take to cross the river in the second case?