Results matter!

Crossing the river

Keywords: trigonometry, law of sines, law of cosines

The ferryman must get from his dock on one river bank to the other dock, which is located on the opposite bank, 500 m downstream. The river between the docks is straight and 100 m wide. The speed of the current is 2 m/s. We also know that the ferryman's boat moves at a speed of 12 km/h relative to the water.

Exercise 1. The ferryman wants to travel directly from one dock to the other. He can achieve this by angling the boat across the river and maintaining this direction. By what angle should the ferryman turn his boat from the direct path to travel straight to the other dock?

Exercise 2. If the digital clock on the boat shows 11:00 at the moment of departure (without showing seconds), what time will the clock show at the moment the boat arrives at the other dock?

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