

## 1 | boatman problem

Target displacement:  $\langle 3\text{km}, 2\text{km} \rangle$

We are working with the velocities of the boat and the river. The velocity of the river is defined as  $r = \langle 0, -3.5 \rangle$ . We want to find vector  $v = \langle v_x, v_y \rangle$  s.t.

$$\begin{aligned} |v| &= 13 \text{ km/h} \\ \lambda(v + r) &= \langle 3, 2 \rangle \end{aligned}$$

Where the trip will take  $\lambda$  hours