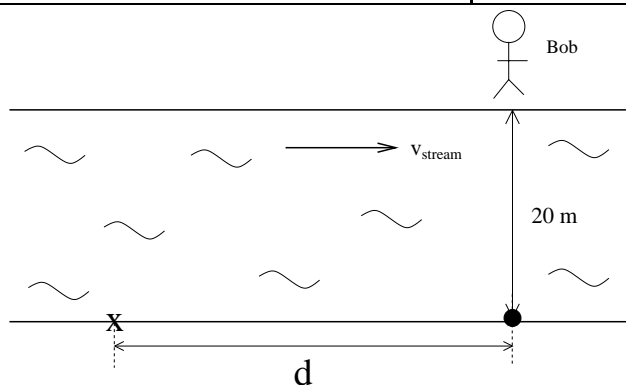


Quiz 1A	DL Sec	Grading:	
Last 6 digits of student ID:		Name:	First three letters of your family name

Xiao Chuan is trying to get across to a river to his friend Bob. Chuan can row the boat at a speed of 2 m/s, and the water is flowing downstream at 1.2 m/s. The river is 20 meters across. For these problems, you should recall the final velocity $\mathbf{v} = \mathbf{v}_{\text{row}} + \mathbf{v}_{\text{stream}}$. [90%]



1. (a) If Xiao Chuan starts at the dot and rows so that he travels directly to Bob, what is his velocity?

(b) How much time does the journey take?

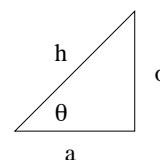
(c) If Xiao Chuan rows straight across the river, how far up stream should he start? That is, if he starts at the “x” in the diagram, rows directly across the river and ends up at Bob, what should d be?

(d) How much time does this new journey take?

Formula: $\mathbf{p} = m\mathbf{v}$, $\mathbf{v} = \mathbf{d}/\Delta t$, $\text{KE} = \frac{1}{2}mv^2$,

$$h^2 = o^2 + a^2$$

$$a = h \cos \theta, \quad o = h \sin \theta$$



2. (a) Is it possible for an object travelling at a *constant speed* to change its velocity? If so, give an example. (If not, no explanation is needed) [5%]

(b) Is it possible for an object travelling at a *constant velocity* to change its speed? If so, give an example. (If not, no explanation is needed) [5%]