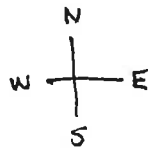
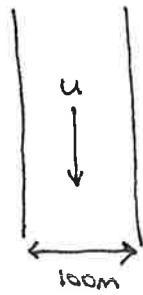


ASGV 3 EX 34.4 (Relative motion)



$$u = 3 \text{ m/s}$$

$$v_B = 10 \text{ m/s w.r.t water}$$

To travel upstream 100m,

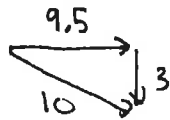
$$t_u = \frac{L}{v} = \frac{100 \text{ m}}{7 \text{ m/s}} = \boxed{14.3 \text{ sec}}$$

To travel downstream 100m,

$$t_d = \frac{L}{v} = \frac{100 \text{ m}}{13 \text{ m/s}} = \boxed{7.7 \text{ sec}}$$

To travel across river (due east)

$$t_A = \frac{100 \text{ m}}{9.5 \text{ m/s}} = \boxed{10.5 \text{ sec}}$$



And back across (due west) $t_A = 10.5 \text{ sec}$

To travel up & down, $t = 22 \text{ sec}$

To travel back & forth, $t = 21 \text{ sec}$

So the $E \rightarrow W$ route takes less time.