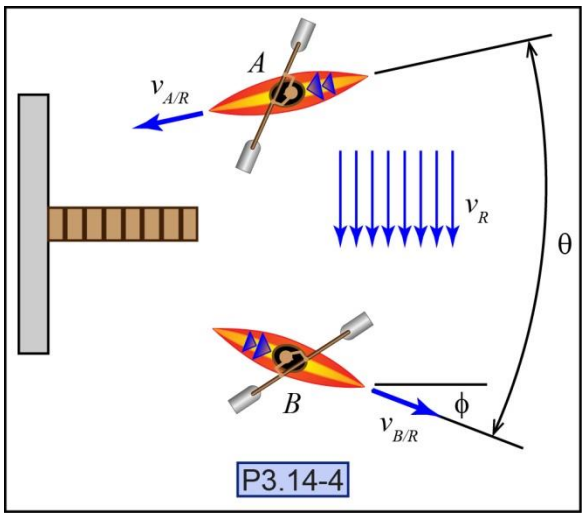
P3.14-4) Kayak A approaches the dock with a speed of 3 knots relative to the flow of the river in the direction shown ($\theta = 60^o$). Kayak B leaves the dock with a speed of 5 knots relative to the flow of the river in the direction shown ($\phi = 40^o$). The flow of the river may be assumed to be straight and in the direction shown. Calculate the speed of kayak A relative to kayak B and prove that this value does not depend on the river speed ($v_R = 2$ knots). Also, calculate the absolute speed of both kayaks.



Given:

Find:

Solution:

Write the velocities in vector form.

$\mathbf{v}_R$ = _____

$\mathbf{v}_{B/R}$ = _____

$\mathbf{v}_{A/R}$ = _____

Determine the speed of kayak B.

v_B = _____

Determine the speed of kayak A.

v_A = _____

Determine the speed of kayak A relative to kayak B.

$v_{A/B}$ = _____