**61. The bridge on the River Tay.**

Geoff and Jewel were canoeing up the river Tay, against the current, passing the shore at a speed of 5 kilometers per hour. As they passed under a bridge, Geoff's hat fell into the water, but he did not notice its loss for ten minutes. At this point, they immediately turned around, and paddling at the same rate, retrieved the hat. Given that the flow in the river is three kilometers per hour, how far from the bridge was the hat when it was retrieved?

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This problem becomes much more straightforward when you look at the motion of the canoe relative to the river. Think of the hat as being stationary in the river. You then realize that it takes the same amount of time for the canoe to move away from the hat as to return to it. So the hat is retrieved twenty mintues after its loss.

Of course, the river *is* flowing at 3 km per hr, so in twenty minutes it will carry the har 1 kilometer downstream from the bridge. It is interesting to observe that the answer would be the same regarless of the speed of the canoe.