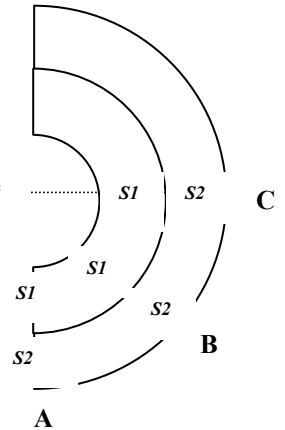


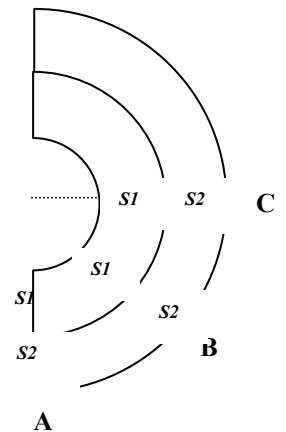
1. Two speed skaters ($S1$ and $S2$) enter the final curve (point A) with exactly the same velocity (say, 20 m/s). At this instant they are tied. Throughout the first half of the curve (points A-C), it appears that the athlete in the outside lane ($S2$) remains tied with the athlete in the inside lane ($S1$). Assume that the athlete in the inside lane maintains a constant speed. Using relative terms like “constant”, “zero”, “greater than”, “less than”, “stays the same”, etc. answer the following questions.

a) Briefly discuss the differences between the linear distances traveled by the athletes between points A and C.

b) Briefly discuss the differences between the tangential velocities of the athletes at points A and C. On the figure to the right, draw the tangential velocity vectors (arrows) for each athlete at points A and C. Indicate relative differences in magnitude by the relative lengths of the vectors (arrows). Be sure to orient your vector in the correct direction.



c) Briefly discuss the differences between the tangential accelerations of athletes between points A and C. On the figure to the right, draw the tangential acceleration vectors (arrows) for each athlete at point B. Indicate relative differences in magnitude by the relative lengths of the vectors (arrows). Be sure to orient your vector in the correct direction.



d) Briefly discuss the differences between the radial accelerations of the athletes between points A and C. On the figure to the right, draw the radial acceleration vectors (arrows) for each athlete at point B. Indicate relative differences in magnitude by the relative lengths of the vectors (arrows). Be sure to orient your vector in the correct direction.

