

Week 31 (4/14/03)

Simultaneous claps

With respect to the ground, A moves to the right at speed $c/\sqrt{3}$, and B moves to the left, also at speed $c/\sqrt{3}$. At the instant they are a distance L apart (as measured in the ground frame), A claps his hands. B then claps his hands simultaneously (as measured by B) with A 's clap. A then claps his hands simultaneously (as measured by A) with B 's clap. B then claps his hands simultaneously (as measured by B) with A 's second clap, and so on. As measured in the ground frame, how far apart are A and B when A makes his n th clap? What is the answer if $c/\sqrt{3}$ is replaced by a general speed v ?