



# Boarding Faster

Waiting in line while boarding a plane isn't just irritating, it's also costly: The extra time on the ground amounts to millions of dollars each year in lost revenue for the airlines. Research into different boarding procedures uses mathematics such as Lorentzian geometry and random matrix theory to demonstrate that open seating is a quick way to board while back-to-front boarding is extremely slow. In fact, mathematical models show that even people boarding at random get to their assigned seats faster than when boarding back-to-front.

Figuring out your own strategy for boarding a plane is hard enough, but modeling the general problem—which depends on many variables such as distance between rows, amount of carry-on baggage, and passengers' waistlines—is substantially more complex. So researchers were pleased when they discovered that their theoretical analysis confirmed simulations conducted by some airlines. An added bonus to the research is that the mathematics used in the boarding problem is similar to that used to improve a disk drive's data input and output requests. One clear difference: Data doesn't try to carry on an extra bit.

**For more information:** "Plane Geometry: Scientists Help Speed Boarding of Aircraft," Nicholas Zamiska, *The Wall Street Journal*, November 2, 2005.



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