personal english





Facts and Trivia #31 Santa Physics

CHILD: Mommy, is there a Santa Claus?

MOMMY: Well, honey, here is the Christmas math. There are 2 billion children (that is, people under 18) worldwide, but since Santa doesn't (appear to) handle Muslim, Hindu, Jewish and Buddhist children, that reduces the workload to 15% of the total - which means 378 million, according to the Population Reference Bureau. At an average census rate of 3.5 children per household, that totals **91.8 million homes**. Presuming that there's at least one good child in each, Santa has **31 hours** of Christmas to work with - this thanks to the different time zones and the rotation of the earth, assuming he travels east to west (which seems logical). This works out to 822.6 visits per second. Assuming that each of these 91.8 million stops are evenly distributed around the earth, it would mean that Santa's sleigh has to move at 650 miles per second – that is, 3,000 times the speed of sound. Assuming that each child gets nothing more than a medium-sized Lego set (2 pounds), the sleigh is carrying 321,300 tons, requiring at least 214,200 reindeer to pull this load. This increases the payload - not even counting the weight of the sleigh – to 353,430 tons. 353,000 tons traveling at 650 miles per second creates enormous air resistance – this will heat the reindeer up in the same fashion as spacecrafts re-entering the earth's atmosphere. The lead pair of reindeer will absorb 14.3 QUINTILLION joules of energy per second – each. In short, they will burst into flame almost instantaneously, exposing the reindeer behind them, and creating deafening sonic booms in their wake. The entire reindeer team will be vaporized within 4.26 thousandths of a second. Santa, meanwhile, will be subjected to centrifugal forces 17,500.06 times greater than gravity; accordingly, a 250-pound Santa would be pinned to the back of his sleigh by 4,315,015 pounds of force. In conclusion — If Santa ever did deliver presents on Christmas Eve, well, I am afraid he's dead by now.

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