

Answer #317

The answer is (a): The shorter stick will reach the table first, as seen in a slow-motion mpeg video by clicking your mouse on the photograph below.



It is interesting to note that although the two meter sticks have the same geometry, the dynamics of this situation does not scale. The angular acceleration of such a stick is equal to the torque divided by its moment of inertia. The moment of inertia of a stick about its end is proportional to the square of the length of the stick, but the torque increases only linearly with length. The angular acceleration therefore is proportional *inversely* to the length of the stick, so the longer the stick the more slowly it accelerates.

[Question of the Week](#)

[Outreach Index Page](#)

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