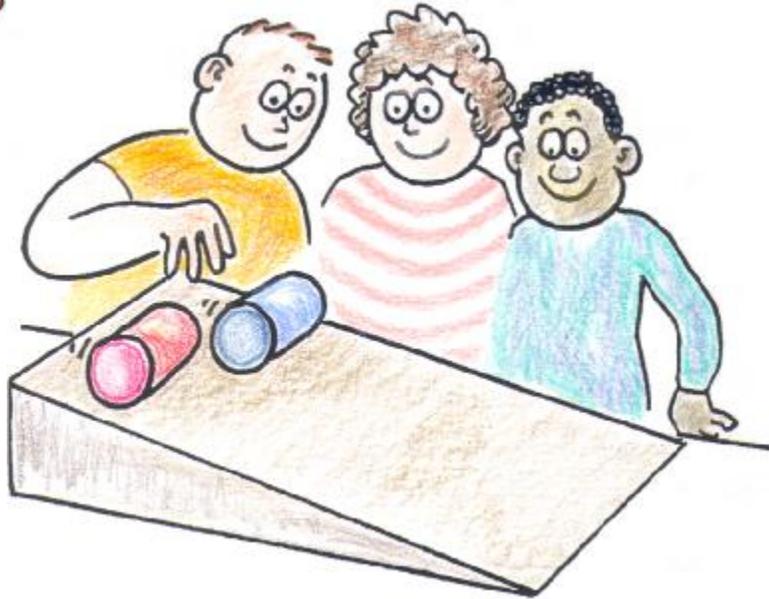


NEXT-TIME QUESTION



Which will roll down a hill faster, a can of regular fruit juice or a can of frozen fruit juice?

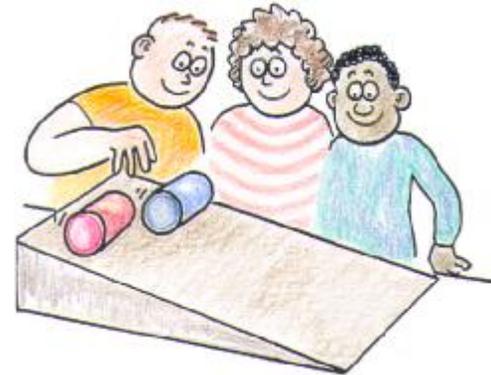
- a) Regular fruit juice.
- b) Frozen fruit juice.
- c) Depends on the relative sizes and weights of the cans.



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Answer: a

The regular fruit juice has an appreciably greater acceleration down an incline than the can of frozen juice. Why? Because the regular juice is a liquid and is not made to roll with the can, as the solid juice does. Most of the liquid effectively slides down the incline inside the rolling can. The can of liquid therefore has very little rotational inertia compared to its mass. The solid juice on the other hand, is made to rotate, giving the can more rotational inertia.

Any freely sliding object will beat any rotating object on the same incline because none of its potential energy is given to rotational kinetic energy.

