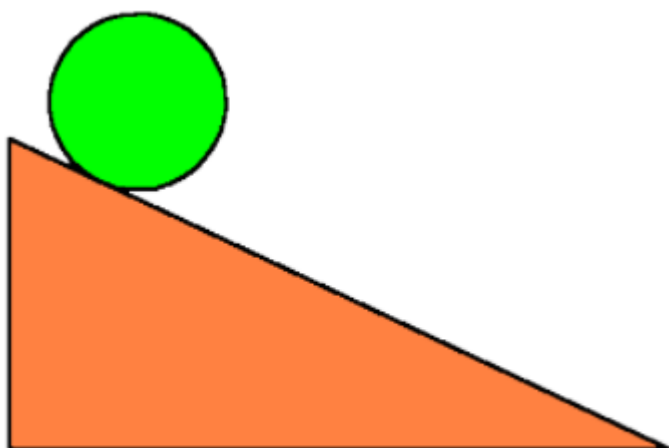


Solutions:

Off to the races. A standard physics problem (and demo) races cylinders rolling down an inclined plane. The cylinders are constructed to have the same mass and the same outer radius, but one is solid wood and the other is a metal hoop. The hoop, having the greater moment of inertia, accelerates less under the gravitational force, and loses the race.



Rolling down an incline.

But what if we handicap this race differently. Make two **solid** cylinders of the same length and radius, but of materials of very different density. They will have very unequal masses. Now which one will win, and why?

Answer: The races will all end in a tie.

Conclusion: this experiment is not mass dependent.

Now race two spherical balls of the same radius but different masses, say one of steel, one of wood. Which will win?

Answer: The races will all end in a tie.