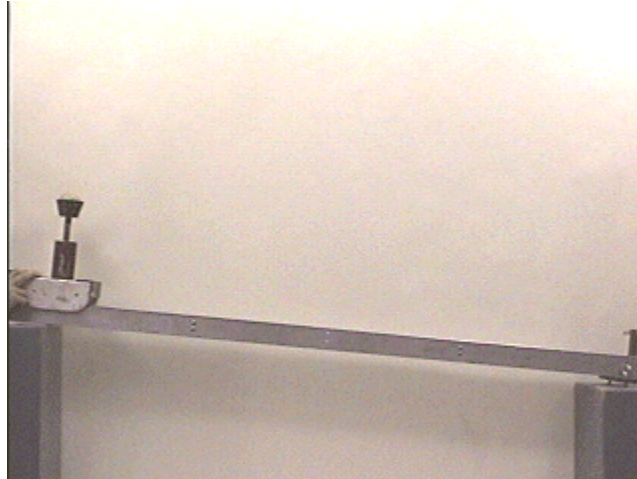


## Answer #8

The answer is (c); the ball will fall IN the funnel, as can be seen in an mpeg by clicking on the picture below.



It is easy to see that the cart will accelerate down the incline; it is harder to see that the ball also has a component of acceleration down the incline. In fact, because the track is tilted with respect to the gravitational field, both the cart and the ball have identical components of acceleration *along the track*.

Suppose that the cart is pushed UP the incline, and will eject the ball when it gets to a point about one-third of the way up. What will happen? Will the ball fall ahead of the funnel (up the track), behind the funnel (down the track), or in the funnel?

The ball will fall IN the funnel once again. Mathematically, this problem is exactly the same as that when the cart is accelerating down, except that the sign of the acceleration *relative to that of the initial velocity of the cart* is reversed for both the cart and the ball.

---

[Archive 1](#)

[Question of the Week](#)

[Outreach Index Page](#)

[Lecture-Demonstration Home Page](#)



For questions and comments regarding the *Question of the Week* contact [Dr. Richard E. Berg](#) by e-mail or using phone number or regular mail address given on the [Lecture-Demonstration Home Page](#).