Let's consider a kinematics problem.

And in this problem, we want to focus on special conditions-- how to think about that.

So what I'm going to consider is some charged plates, and I have a charged particle, and it enters into this region of charged plates.

And in this problem, there's two types of forces that are going to act on this particle.

There's a gravitational force down.

And we're going to talk about some constant force upwards, whose magnitude is changing in time.

And what I'd like to do is know what type of-- how strong does this force have to be-- this b is a constant-- in order for the particle to not hit the bottom?

Now, let's think about a little-- when we get started on a problem like this, there's a number of different issues that we have to think about.

The first issue is that how do we even sketch what we think will happen here?

Well, a particle enters at time t equals 0.

So this force is initially zero when the particle enters.

So the particle is experiencing gravitational force.

And we should expect it to move-- start to accelerate downwards.

But then this force is increasing in time.

And so at a certain point, these two forces will balance and the particle will have no net force up.

And gradually, this force will increase so the particle will experience a force up.

So we would expect some type of motion where the particle starts to go down.

But now, it's starting to feel that force upwards and it starts to maybe move upwards like that.

So what I've done here is I've sketched a trajectory of the motion to help me think about the problem.