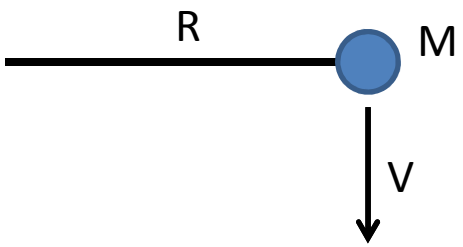
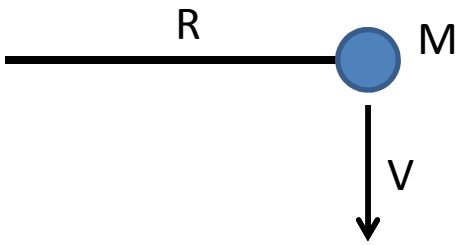
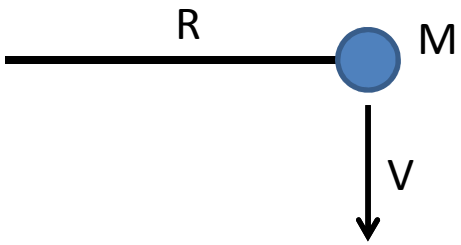


A ball of mass M revolves in a circular path on the end of a string. Using $L = I \omega$, calculate the angular momentum of the ball in terms of M, V, and R.



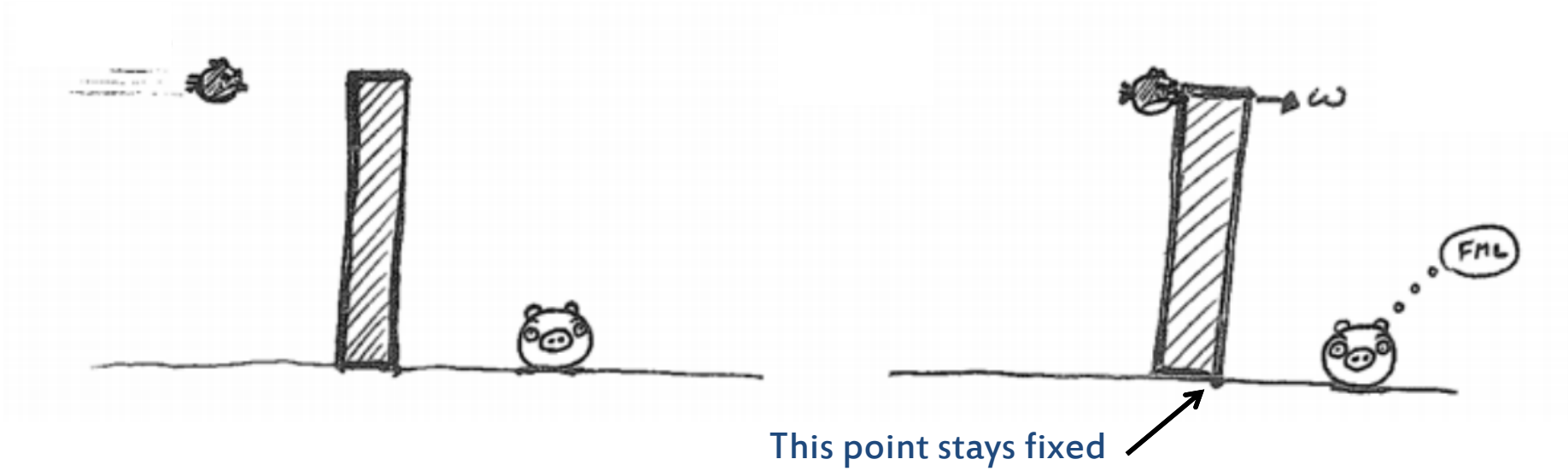
A ball of mass M revolves in a circular path on the end of a string. Using $L = I \omega$, calculate the angular momentum of the ball in terms of M, V, and R.

A) MRV
B) MVR
C) RMV
D) RVM
E) VRM
F) VMR



A ball of mass M revolves in a circular path on the end of a string. Using $L = I \omega$, calculate the angular momentum of the ball in terms of M, V, and R.

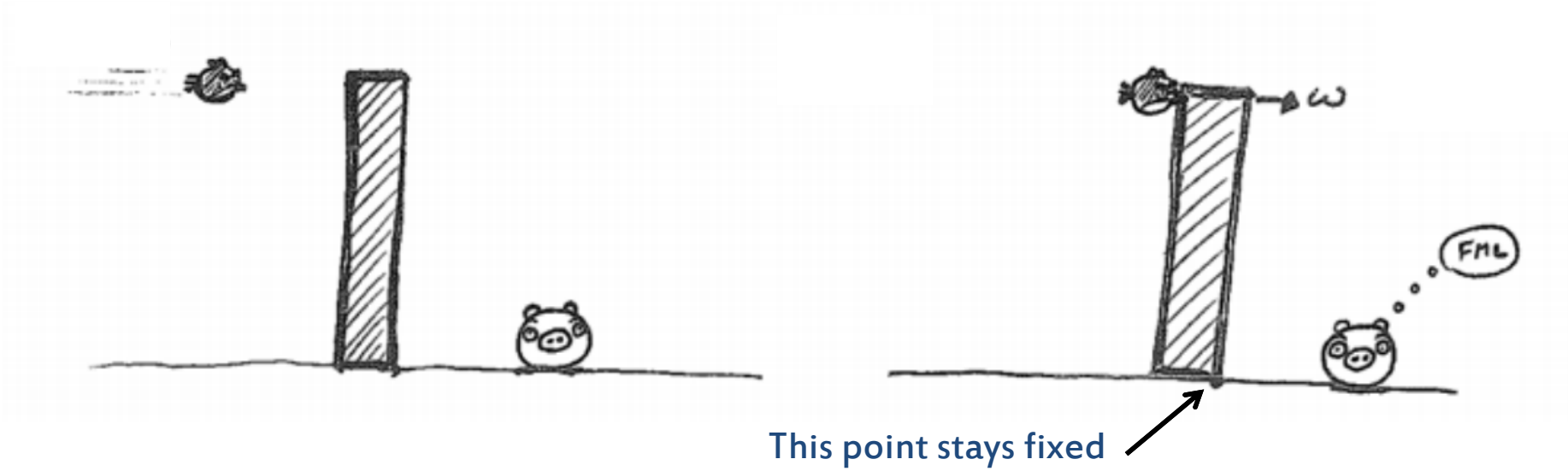
A) MRV
B) MVR - The other ones are okay but this one is my initials!
C) RMV
D) RVM
E) VRM
F) VMR



An rather displeased bird collides with a large wooden block that randomly happens to be standing near a pig. If the angular velocity of the block just after the collision is ω what will be angular velocity when the block hits the pig (which we assume is much smaller than the block). The block has height H, width L, mass M, and moment of inertia I (with respect to the fixed point).

Extra: how could we determine the initial angular velocity ω, given the mass and initial speed of the bird?

Extra extra: what speed does the bird need to topple the block?

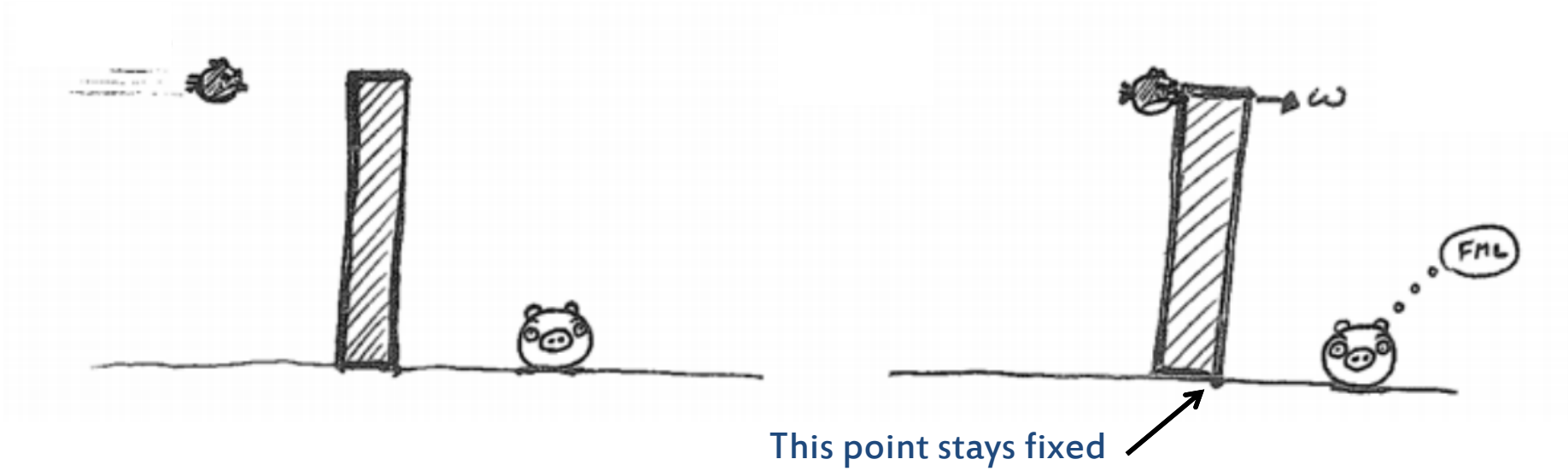


Answer: use energy conservation:

$\frac{1}{2} I \omega^2 + M g H/2 = \frac{1}{2} I (\omega_{final})^2 + M g L/2$

Extra: how could we determine the initial angular velocity ω, given the mass and initial speed of the bird?

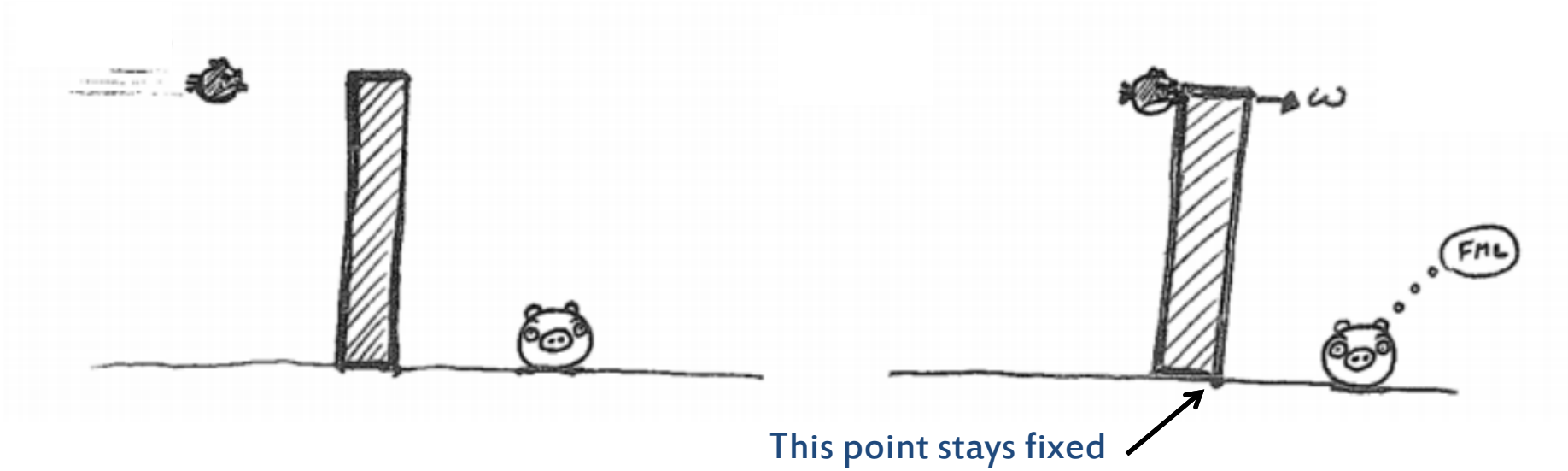
Extra extra: what speed does the bird need to topple the block?



Extra: how could we determine the initial angular velocity ω, given the mass and initial speed of the bird?

Answer: use angular momentum conservation:

$m v H = I \omega$



Extra extra: what speed does the bird need to topple the block?

Answer: The angular speed just after the collision must be enough so that the block will get at least to the point where its center of mass is above the fixed point. To find this initial angular speed, we say that the energy just after the collision equals the energy at the point where the block is tipped to this point.