# Notes and Reflections

**I was able to make very effective use of study groups this Int-set, and working through the problems with Siddhartan helped me understand them better. I now know the basic ideas behind this, although the nasty algebra can still get nasty at times, and I’m not sure I can reliably solve many-body versions of these problems.**

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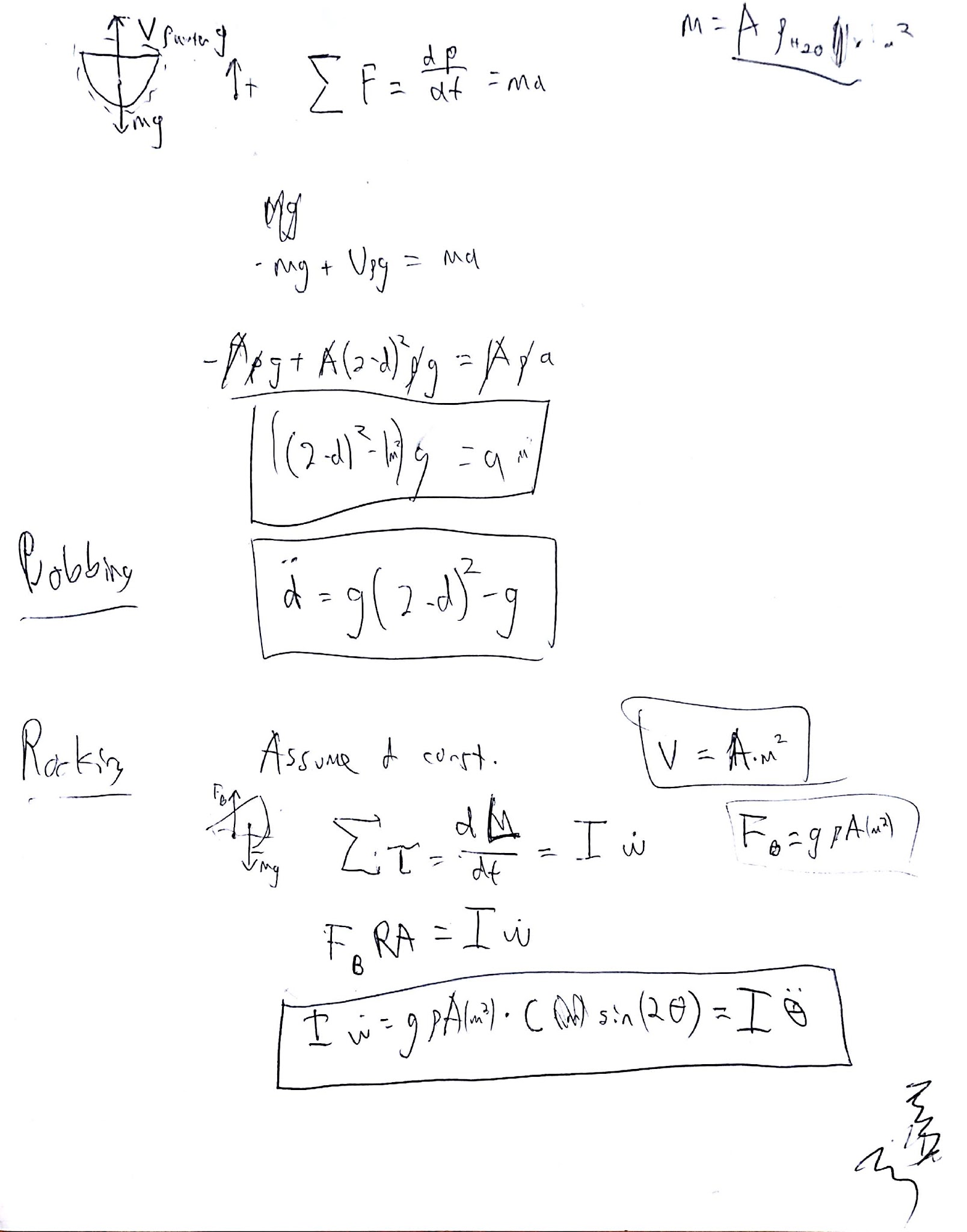
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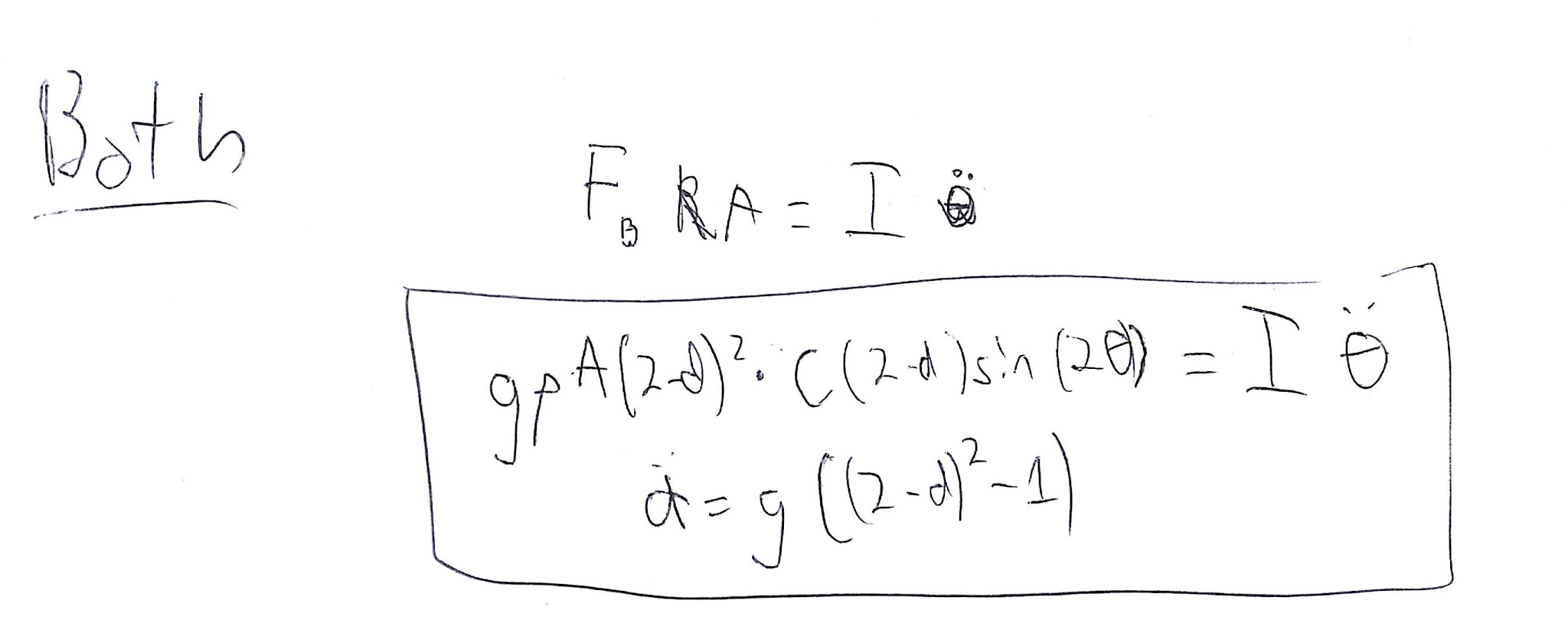
[A perfect segway](#_uhdqt9o0mhnf)

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*Solutions begin on next page*

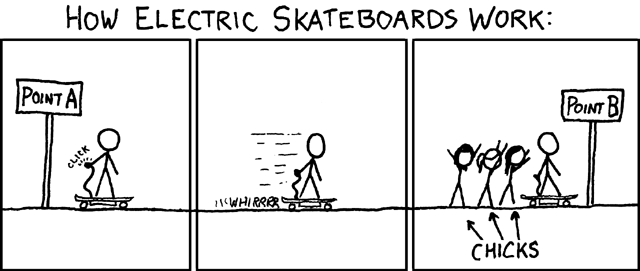
# More Boats!



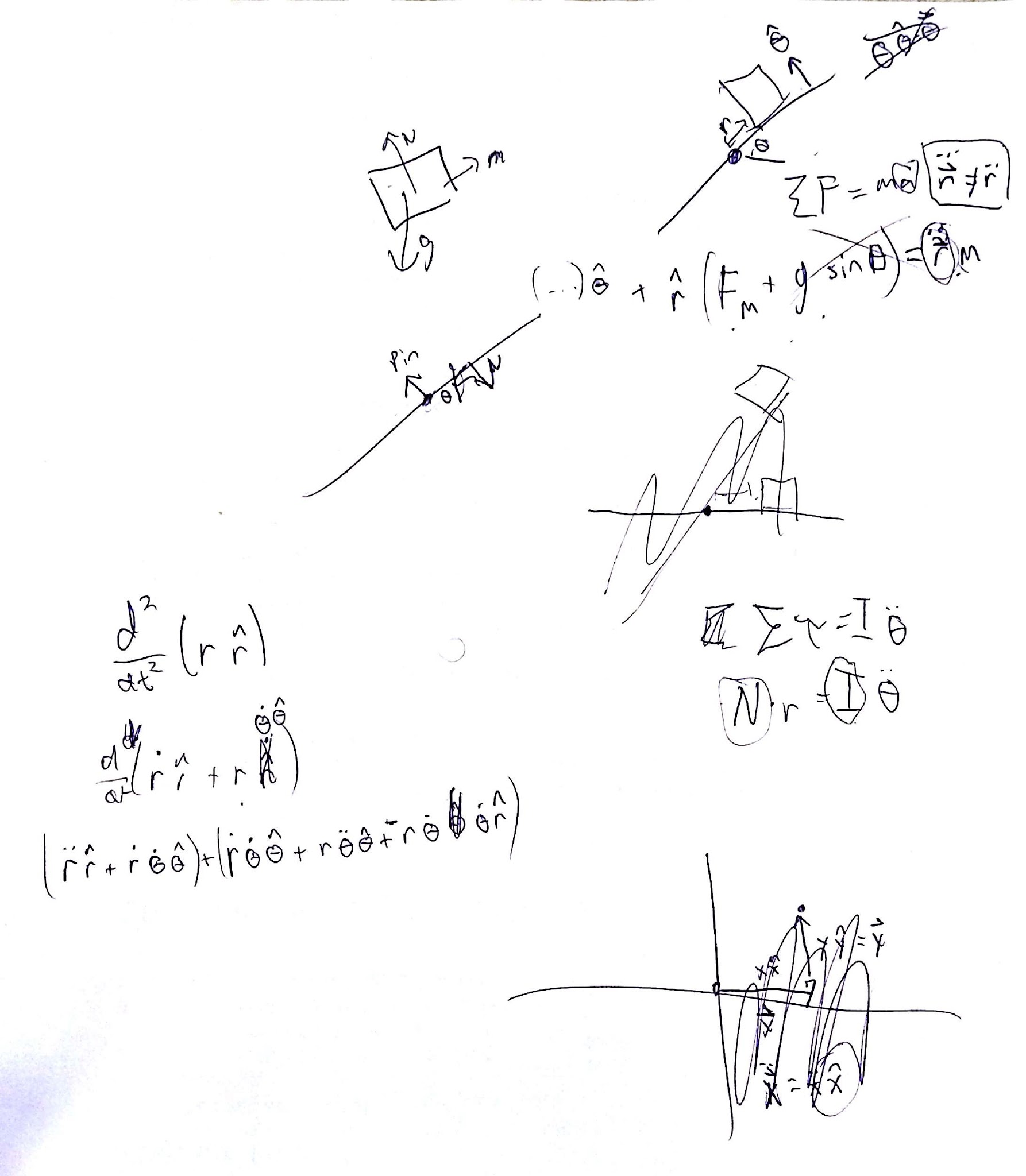


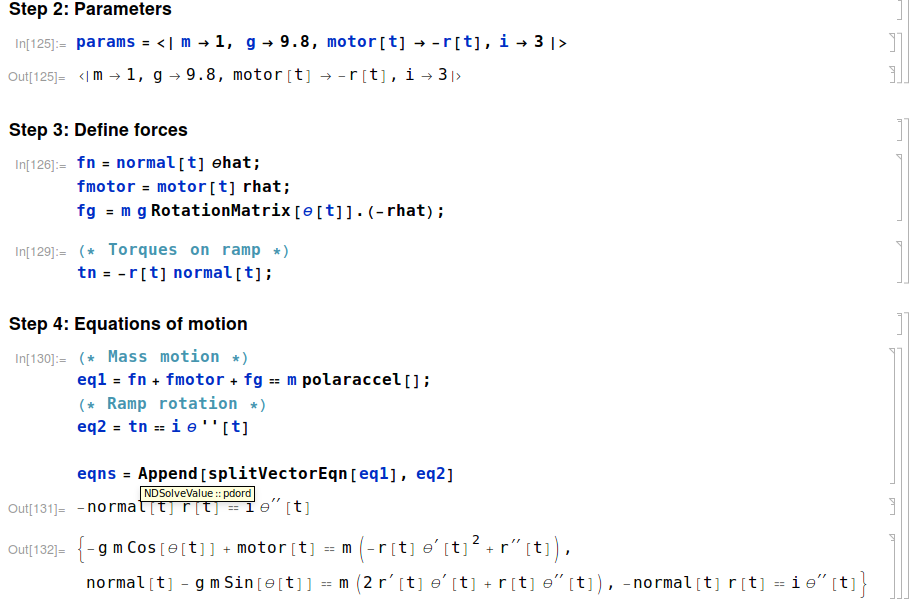
# Electric Skateboards

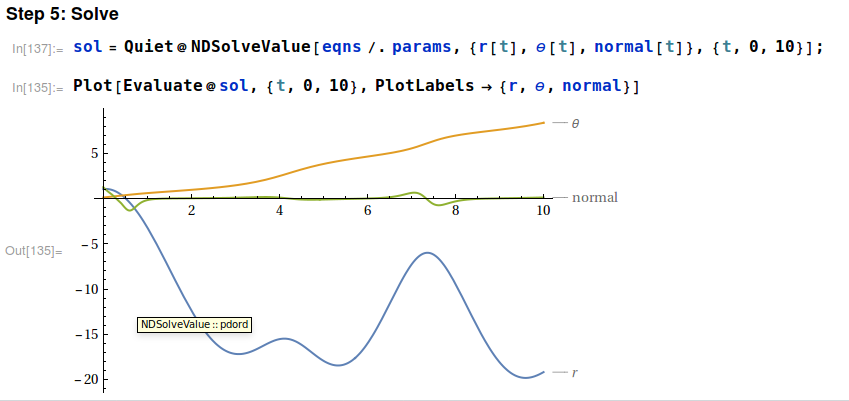
Obligatory xkcd



Step 1: FBD





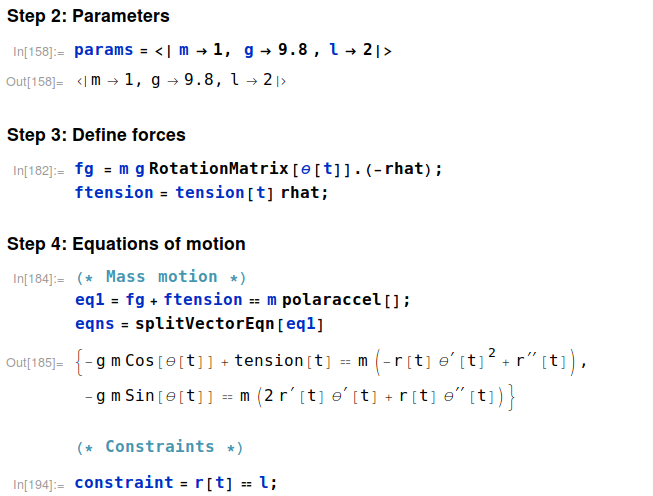


Note that a proper solution would define initial conditions. In this case, I just let *Mathematica* guess some.

# SegwaysF2TB6VKQMAUBrhJ7dLe0LQQC.jpg

## Just a pendulum

Step 1: FBD

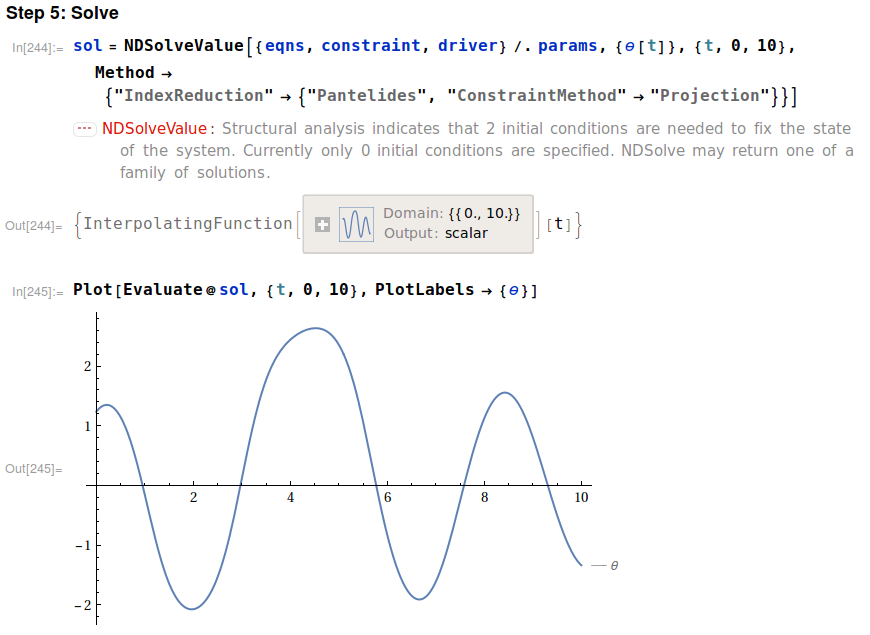
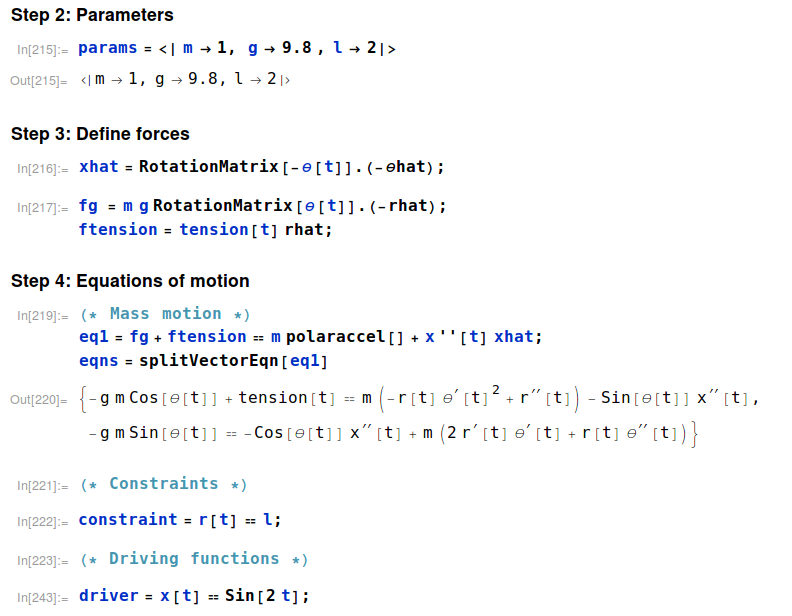


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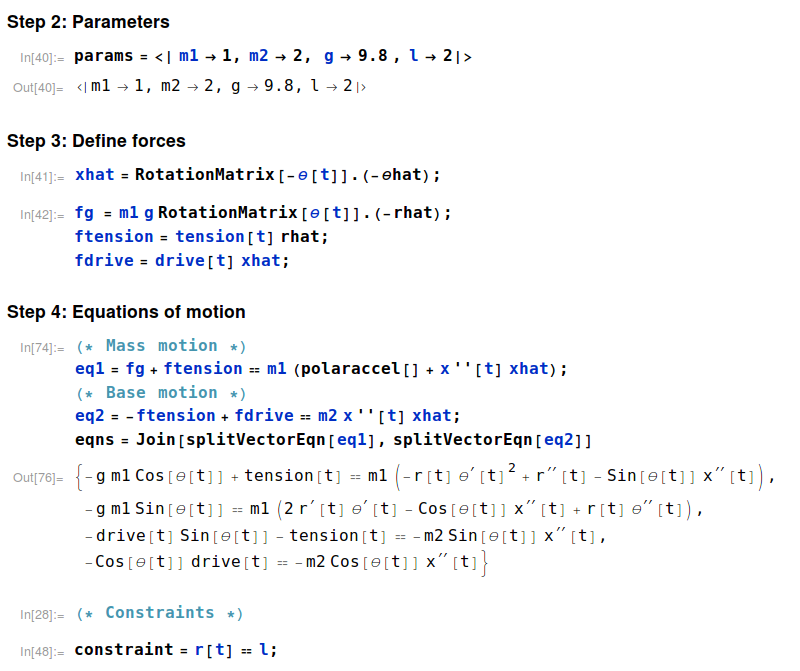
# 

## A perfect segway

All that needs to change is replacing with on the rhs of Newton’s equation.



## Massy segway



Unfortunately, I wasn’t able to get far enough to fully solve this one. I am confident I can, but I just haven’t yet.