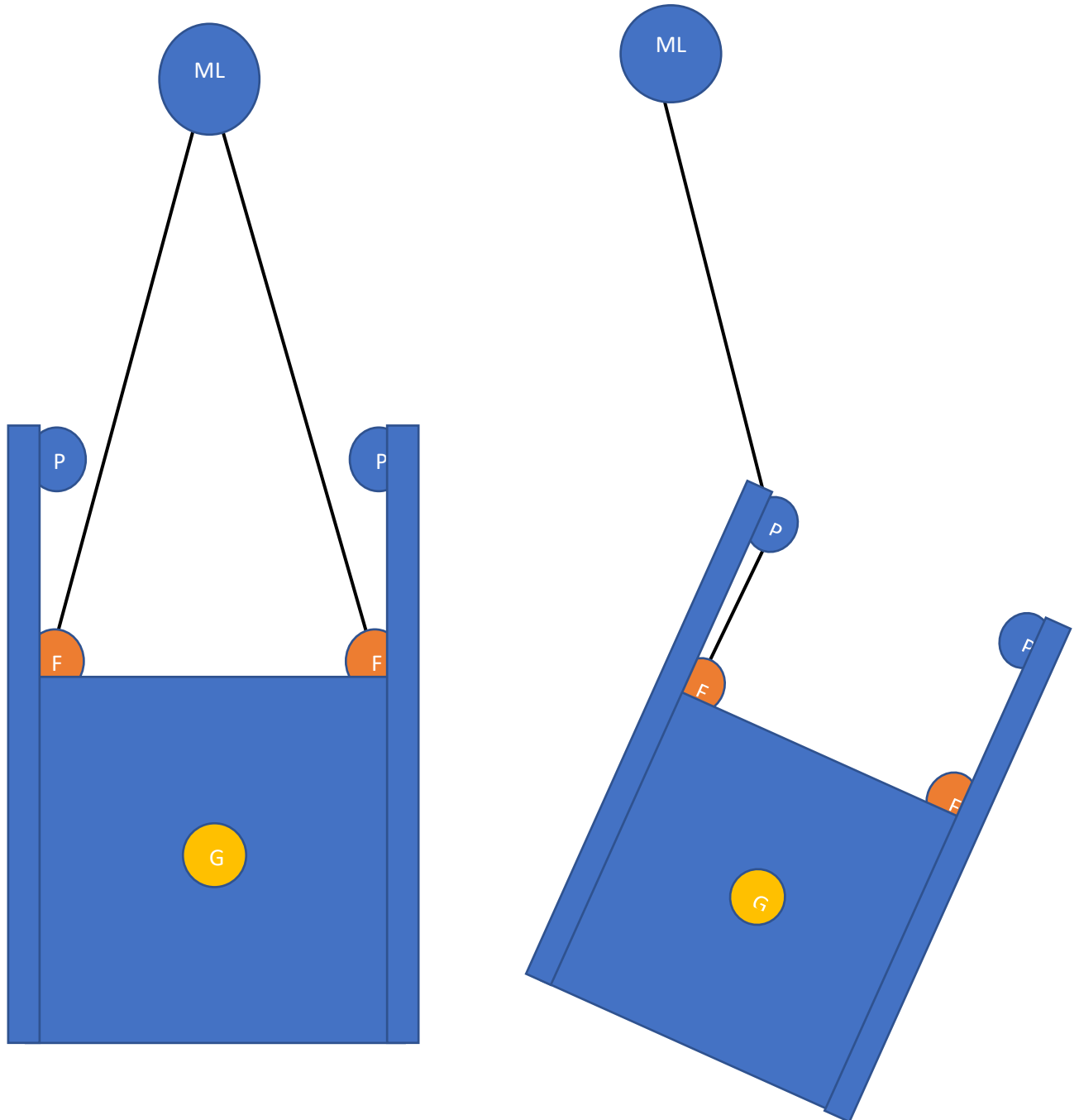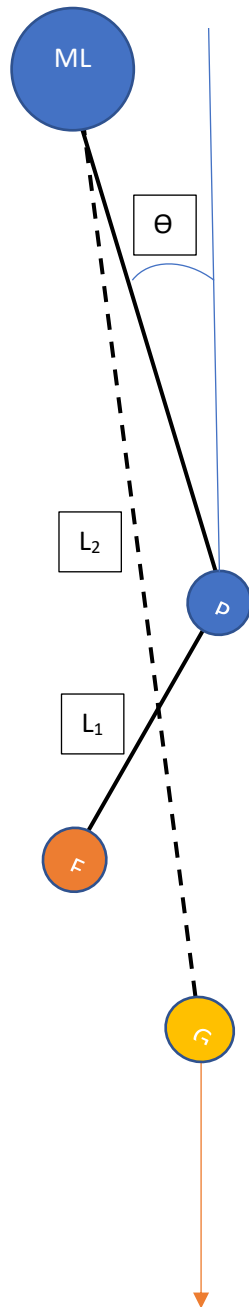Picture a basket, connected to a hanging point (ML), from two fixings (F). One of these fixings snaps and the basket shifts and drops on one side. Resulting in the rope snagging onto a pivot point (P). We know the mass, the length of a couple dimensions. I want to know a method of calculating the angle theta, shown in the last diagram. Point F and G and P are all fixed in place and do not move.

Mass at G: 329kg

L_1 = 0.284mm (P to F)

L_2 = 1.457mm (G to ML)

Any help would be much appreciated. I have an angle based upon the line connected to point G and ML, assuming the line also goes to P. But I am aware that this is inaccurate and that there should be some equilibrium of forces which results in the line ML to G not being vertical and passing through the rope between P and F. I have tried to resolve moments but haven't found success in that.

I can provide further measurements from various points. But as we don't know the point at which the basket will find equilibrium, I cannot provide the angle theta

Please ask if you have any questions.

Thank you.

James