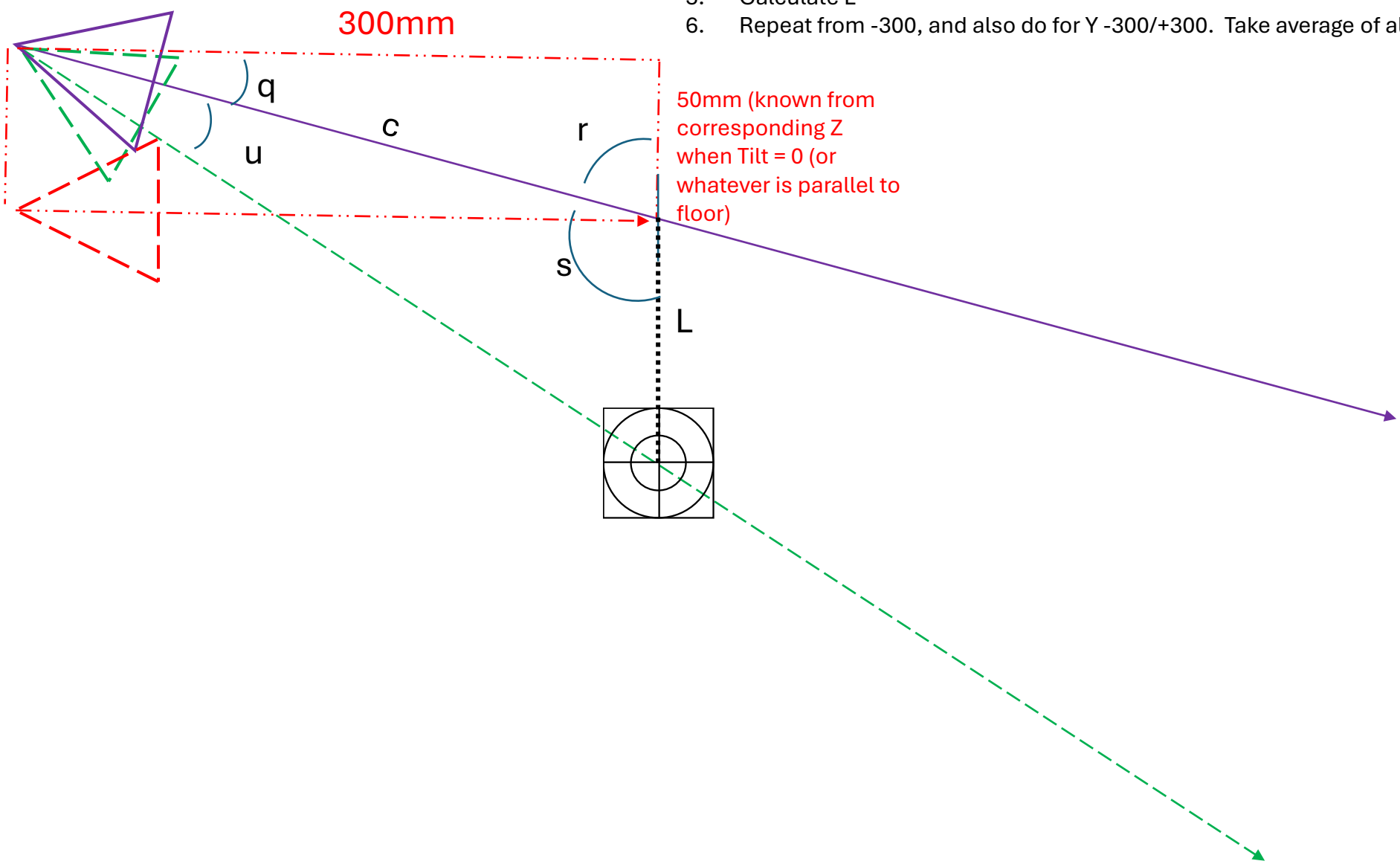
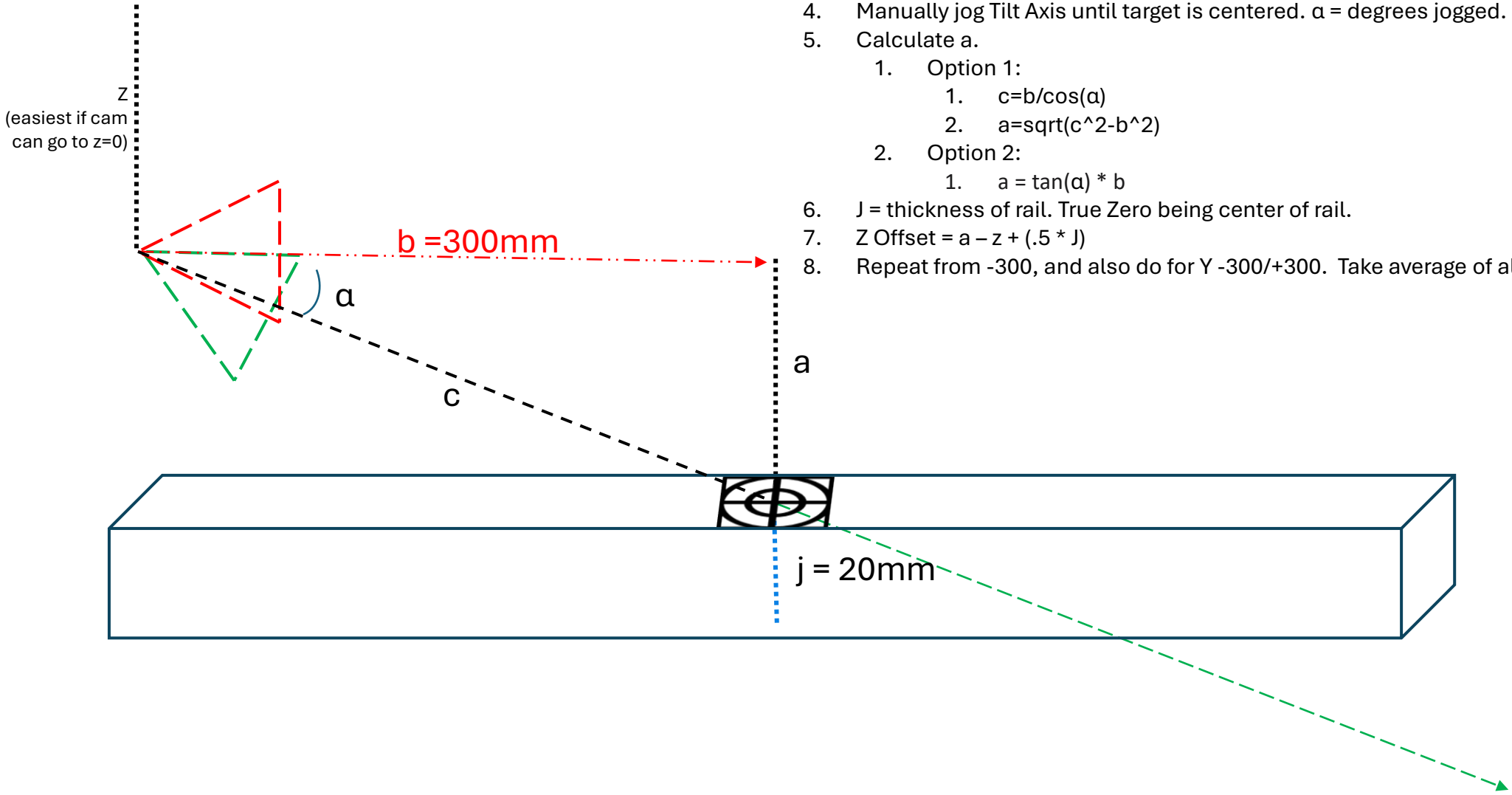
Manual Calibration of Z offset
Option 1

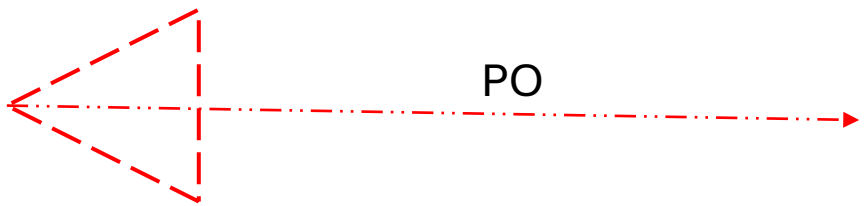
1. Move Cam 300mm along XAxis G0X300 and target to 0,0,0
2. Record angle q and calculate r & s
3. Calculate c
4. Manually jog Tilt Axis until target is centered. U = degrees jogged.
5. Calculate L
6. Repeat from -300, and also do for Y -300/+300. Take average of all 4 estimates.



Manual Calibration of Z offset
Option 2



1. Move Cam 300mm along XAxis G0X300
2. Move to Z to zero (though any z could be used)
3. Target camera to put cam at parallel to “floor” (Tilt = 0?)
4. Manually jog Tilt Axis until target is centered. α = degrees jogged.
5. Calculate a.
    1. Option 1:
        1. c=b/cos(α)
        2. a=sqrt(c^2-b^2)
    2. Option 2:
        1. a = tan(α) * b
6. J = thickness of rail. True Zero being center of rail.
7. Z Offset = a – z + (.5 * J)
8. Repeat from -300, and also do for Y -300/+300. Take average of all 4 estimates.



[0,0,0]

When targeting 0,0,0, P should be 0, if Z =0. After Homing, Camera may not be at true Zero and therefore we need apply an appropriate correction.