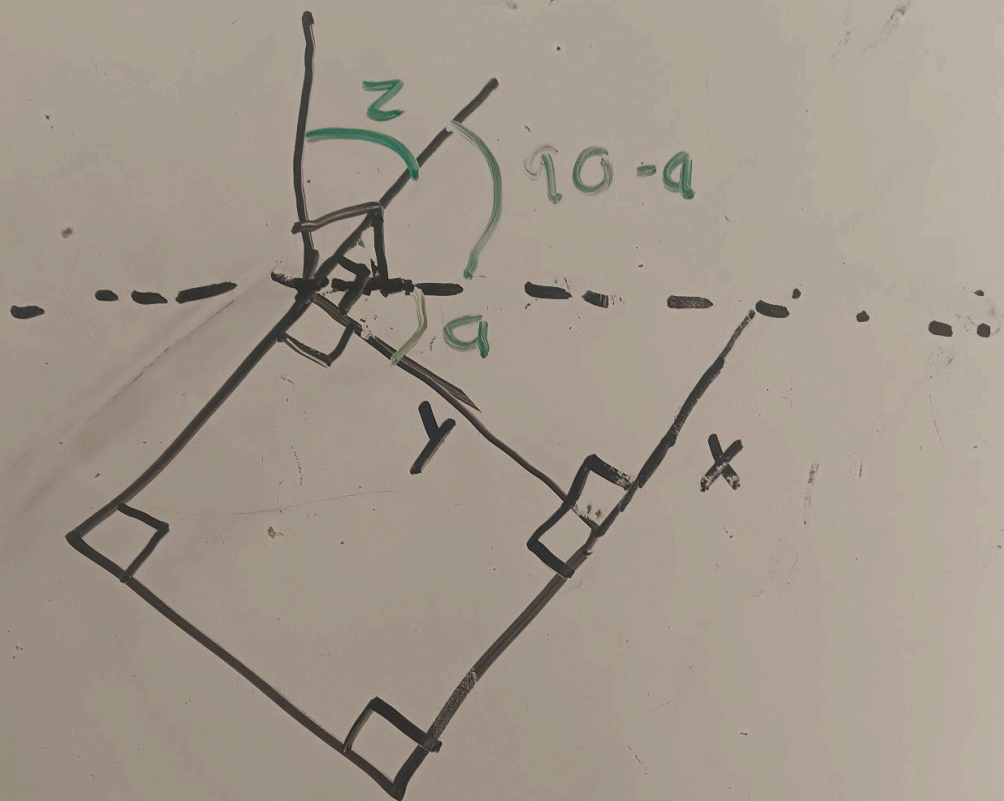


$$z = a$$

$$z = 90 - (90 - a)$$



x = ticks for z od to cross

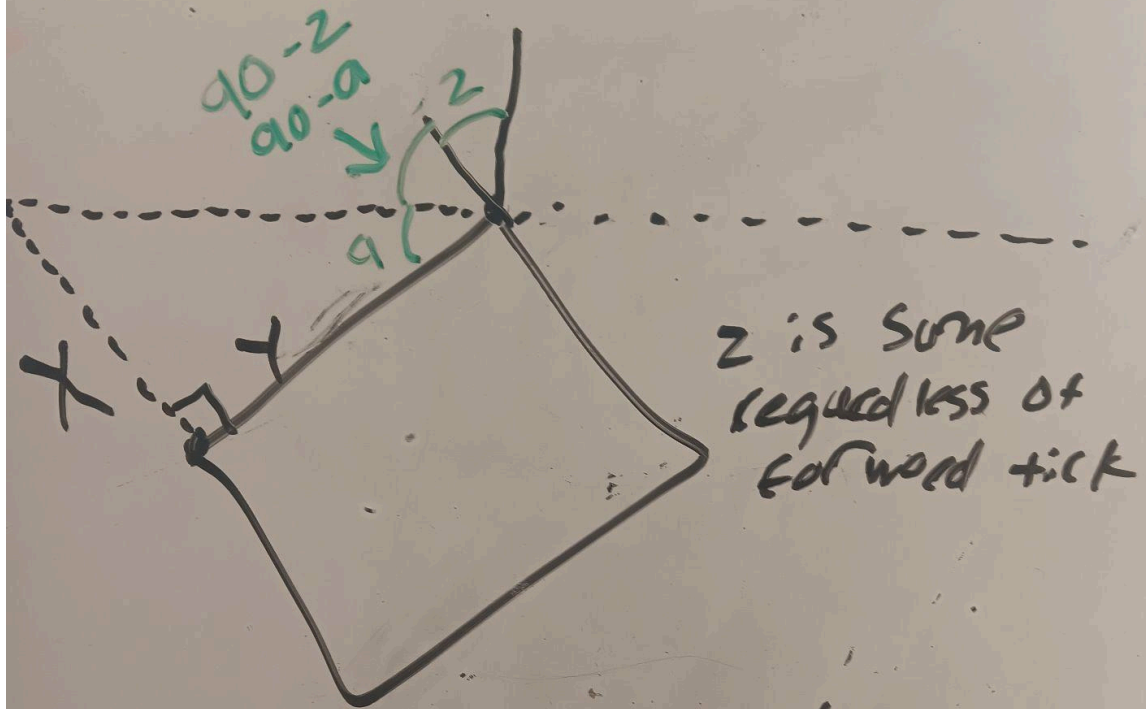
y = dist between ticks horizontally

$$a = \arctan\left(\frac{x}{y}\right)$$

$$z = a$$

$$90 - z = 90 - a$$

$$z = a$$



z is same
regardless of
forward tick

x = dist til back encoder
reaches encoder

y = horiz. dist between
front encoders

z = angle from vertical

$$a = \arctan\left(\frac{x}{y}\right)$$

$$z = a$$

- So, I'll need to first get Y, put that in for the current bot. Should be in meters.
- Next, getting X will be the issue. For now, without the PID, we'll probably map x to be the number of ticks until x reaches the new color, and maybe hope there's a linear relationship between that and distance traveled, and then do $\text{numTicks} * \text{multiplier} = \text{distance}$.
- Later, if the PID allows us to get distance between any given points, we can just get it by measuring when the first encoder hits and then when the second encoder hits.
- If the PID can give current velocity, we can wait for time until we reach the edge, and do $\text{dist} = \text{velocity} * \text{time}$. This assumes velocity will be constant, which it should ideally be.
- Then, we can get z using what's provided above. That'll just be the angle offset we'll have to compensate for.