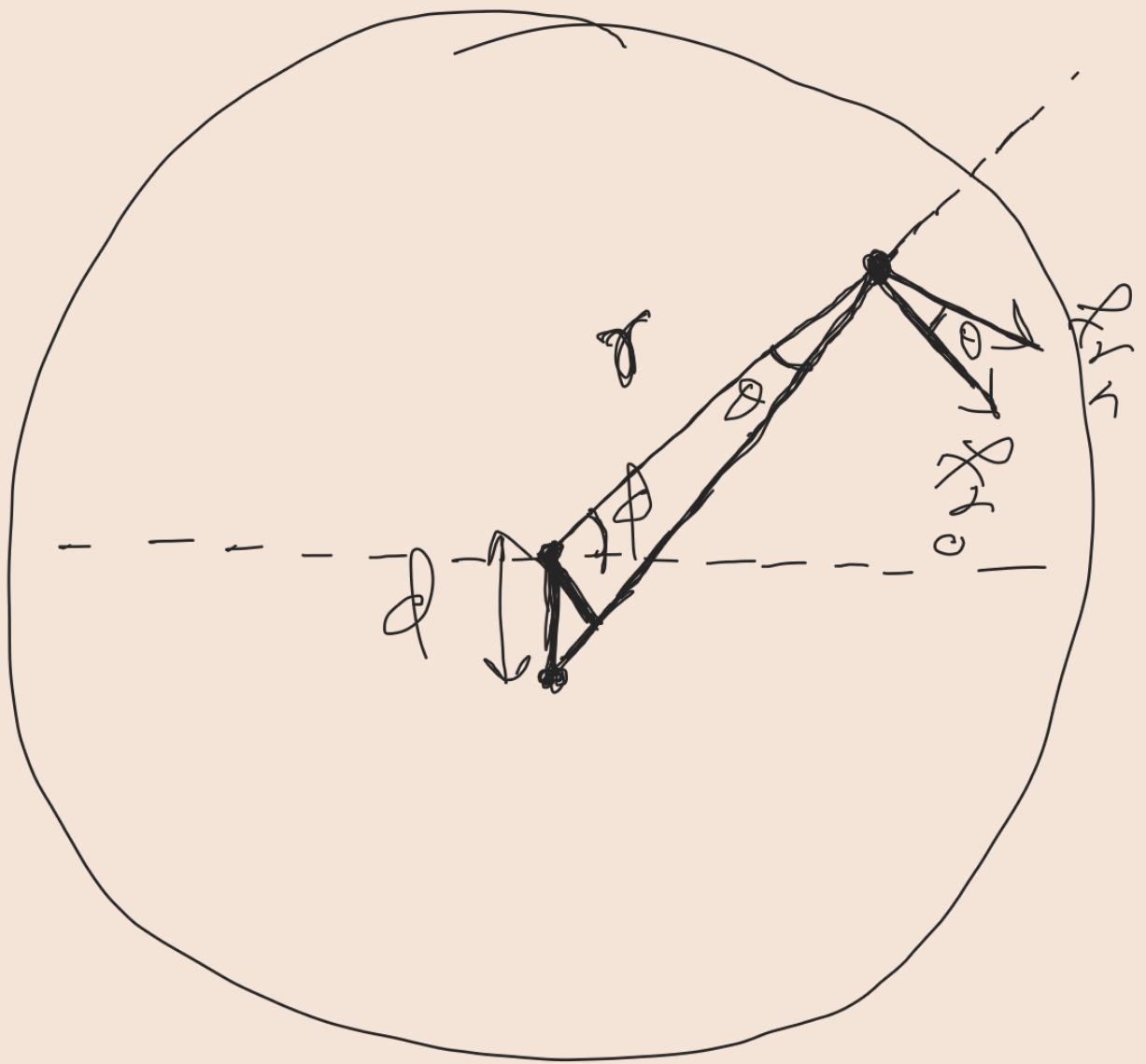
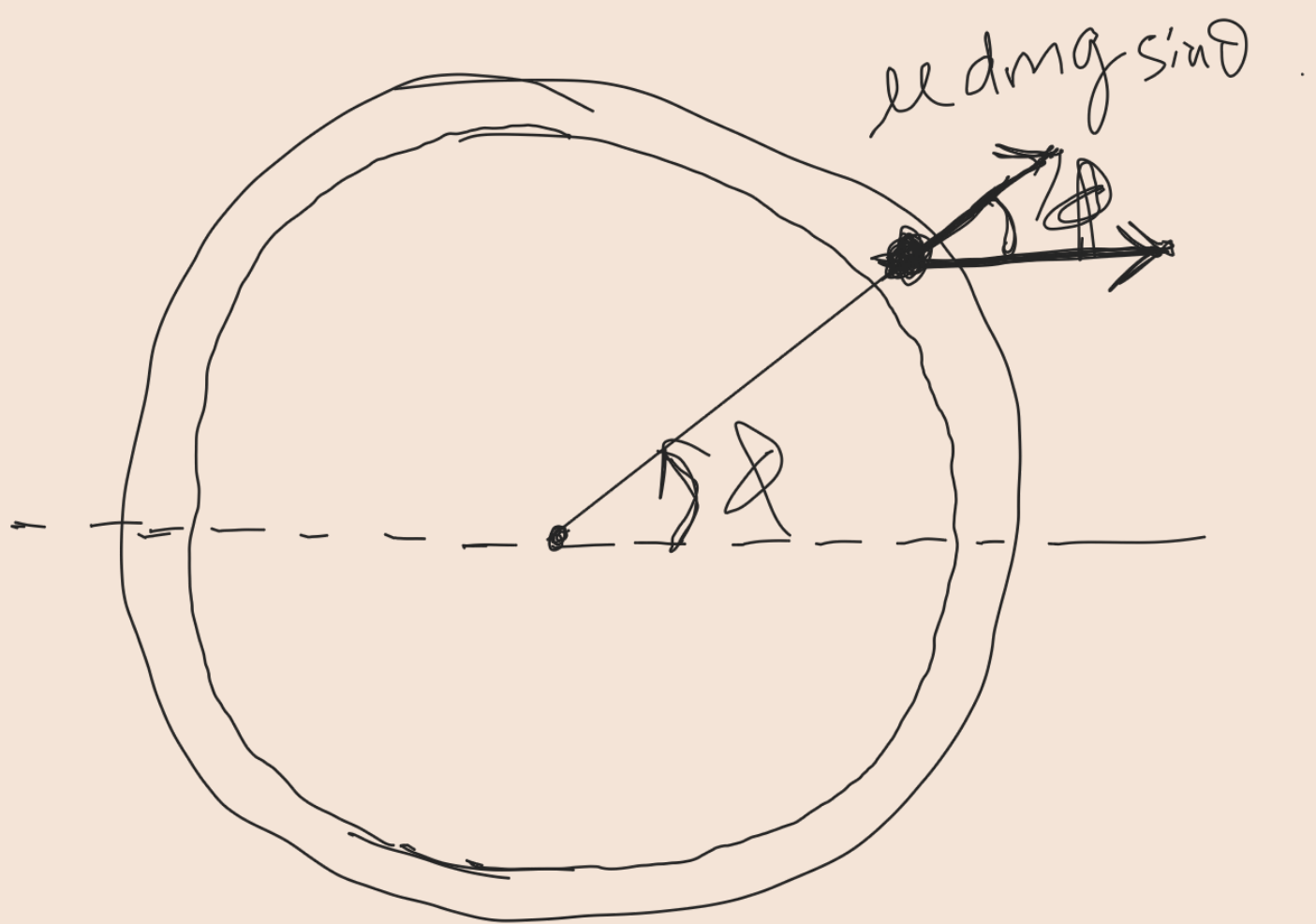




At any general point of disc, the component of F_{r_n} , net friction force, along radial direction, must provide acc of CM of disc.



For an elemental ring, we can first find the net friction force acting on it. From geometry,

A geometric diagram showing a right-angled triangle. The vertical side is labeled d . The hypotenuse is labeled $\frac{\pi}{2} + \theta$. The angle between the vertical side and the hypotenuse is labeled θ . A small circle is drawn on the hypotenuse. Below the diagram, the following equation is written:

$$\frac{d}{\sin \theta} = \frac{r}{\cos \theta}$$

net friction force for
a particular ring will
be

$$\int \mu \sigma (r d\phi)(dr)(\sin\theta) \cos\phi g$$

$$= \mu \sigma g \cancel{r} dr (d) \int_0^{\pi/2} \cos^2\phi d\phi \times 4$$

$$= \frac{d}{\cancel{r}} \mu g \frac{M}{\cancel{\pi R^2}} (\cancel{r} dr) \times \frac{\cancel{\pi}}{A} \times 4$$

Integrating this for all
the rings, we have
net force as

$$(d) (\mu) (g) \frac{M}{R^2} \times R = \mu a_{cm}.$$

$$d = \frac{V_0}{\omega}.$$

$$a_{cm} = \left(\frac{V_0}{\omega} \right) \frac{(\mu g)}{R}$$

Pamfinder answer is
off by factor of '2',

which is incorrect