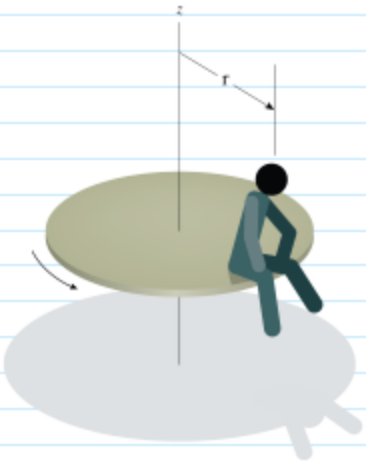


A person sits on the edge of a $r$ radius motorized turn table and is accelerating at $a_+$. The coefficient of static friction between them is $\mu_s$.

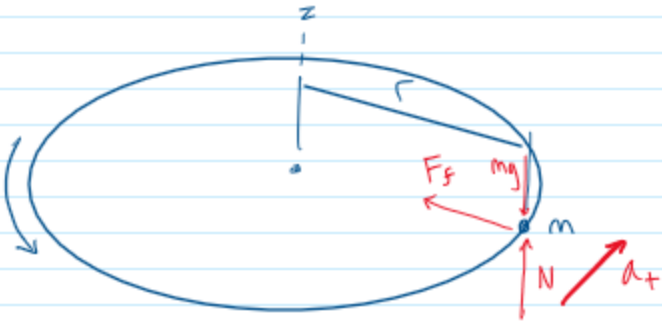
The person is initially moving at $v_1$ tangentially.

Which direction does friction act?

At what speed does the person fall off? How many seconds pass before the person falls off?

given:
$r$
$m$?
$\mu_s$
$a_+$
$v_1$

find:
$v_2$
$t$




$F_f = a_n m = \mu N \qquad N = mg$

$a_n m = \mu N$

$a_n = \frac{v_2^2}{r} \rightarrow \frac{v_2^2}{r} m = \mu m g$

$v_2 = \sqrt{\mu g r}$

$v_2 = v_1 + a_+ t \rightarrow t = \frac{(v_2 - v_1)}{a_+}$