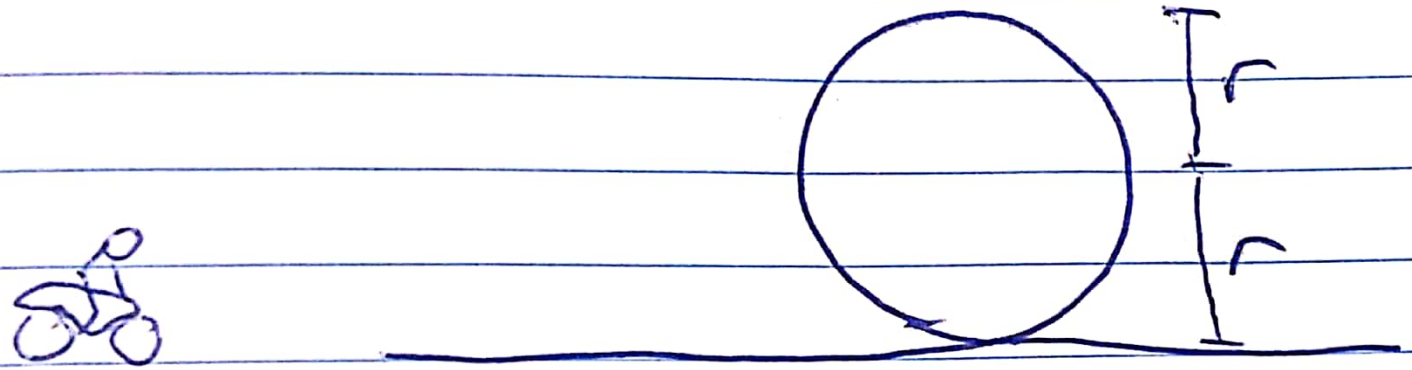

to stay on track at the top,

$\frac{m V_T^2}{r} > mg$ $\quad V_T$ = speed at top

V_B = speed at base

$\frac{1}{2} m V_B^2 = m \cdot g \cdot 2 \cdot r + \frac{1}{2} m V_T^2$

$\rightarrow V_T^2 = g \cdot r$

$V_B^2 = 4 \cdot g \cdot r + g \cdot r \rightarrow r = \frac{V_B^2}{5g}$