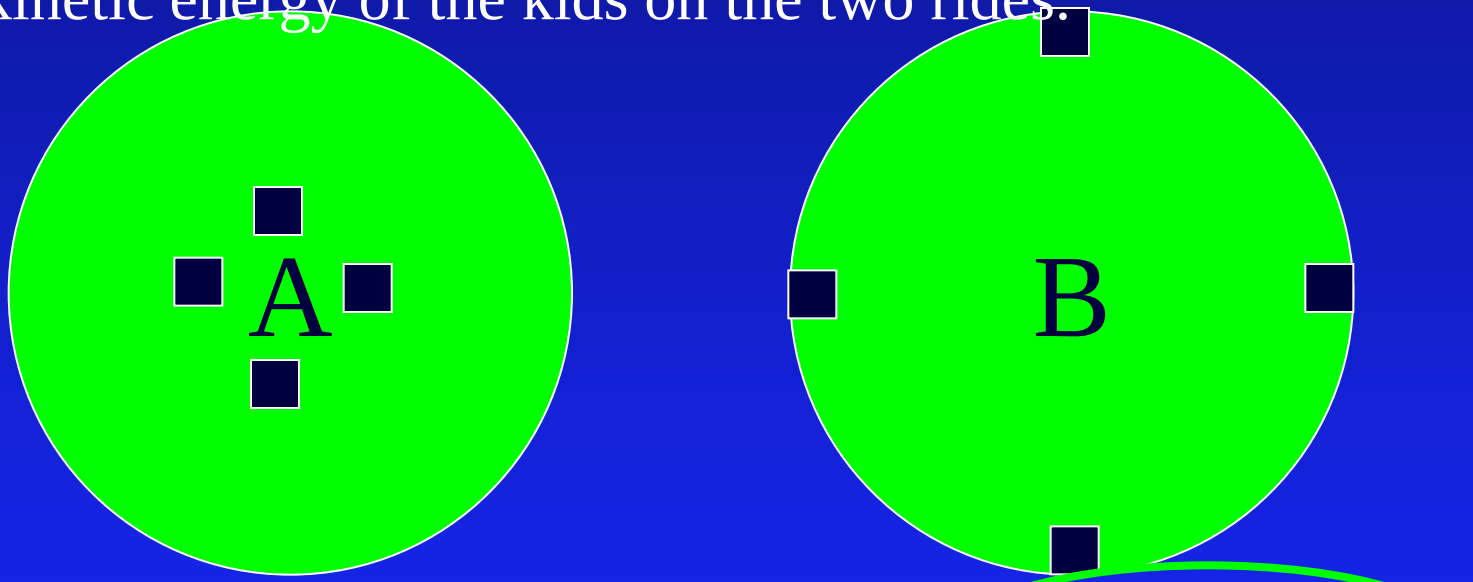
Merry Go Round

Four kids (mass m) are riding on a (light) merry-go-round rotating with angular velocity ω=3 rad/s. In case A the kids are near the center (r=1.5 m), in case B they are near the edge (r=3 m). Compare the kinetic energy of the kids on the two rides.



A) $K_A > K_B$ B) $K_A = K_B$ C) $K_A < K_B$

KE $= 4 \times \frac{1}{2} m v^2$

$= 4 \times \frac{1}{2} m \omega r^2 = \frac{1}{2} I \omega^2$ Where $I = 4 m r^2$

Further mass is from axis of rotation, greater KE it has.
[strength contest]