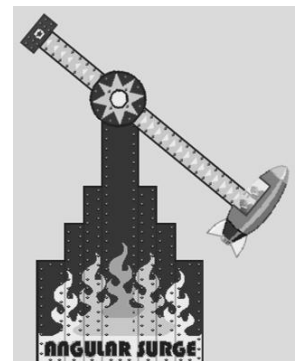


In this interactive you are going to test your skills about Angular Kinematics

1. How is angular velocity related to angular acceleration?

2. On our latest equation sheet find the equations for angular kinematics and copy these equations here.

Lucky you! You just landed a summer job operating the Angular Surge ride at a local amusement park. As shown on the right, the ride has a rotating arm with a rocket for transporting riders. The rocket is fixed to the end of the arm, and you control the angular acceleration of the ride for the first revolution.



Your goal is to set the constant angular acceleration so that, after exactly one revolution, the ride has an angular velocity of 1.64 rad/s. If you set the angular acceleration correctly, the rocket will launch. The angular acceleration you specify will be applied for exactly one revolution and then the rocket arm will maintain its velocity. The arm must be moving at precisely 1.64 rad/s for the safety clamps to release and the rocket to launch when it has completed a single revolution.

1.1 Calculate the angular acceleration (in rad/s^2) you need to give the ride so that it will launch.
Show all work including substitution with units.

Open the shortcut “IL Angular Kinematics” on one of the lab stations.

Open the simulation contained in this section. **Do Not follow the directions in the simulation follow these instructions.**

Enter the value you calculated for angular acceleration in the simulation. You set the acceleration in increments of 0.01 rad/s^2 in the simulation. If you need to round a value after your calculations, make sure you round to the nearest 0.01 rad/s^2 . Press GO to start the simulation and test your calculation.

1.2 Did it work? _____ Record **all** trials here with the angular acceleration and final angular velocity of the ride. Circle the final one that worked.

1.3 Calculate how long the ride took to do this single rotation before releasing the rocket. **Show all work including substitution with units.**

1.4 What angular acceleration would you need to set if the ride accelerated for exactly two rotations before releasing the rocket? **Show all work including substitution with units.**