**Noteguide for Angular Kinematics (Videos 8E) Name**

Angular Kinematics:

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| Linear:  u + at = v  ut + 1/2at2 = s  u2 + 2as = v2  (u + v)t/2 = s | Angular:  ωf = ωi + αt  θ = ωit + 1/2αt2  ωf 2 = ωi2 + 2αθ  θ = (ωi + ωf)t/2\*  \* not in data packet |

Example: My gyro spinner speeds up to 10,000 RPM, in 0.78 sec.

What is its angular acceleration?

What angle does it go through?

What distance does a point on the edge travel if the diameter is 1.1 cm?

(Whiteboards on the back)

Whiteboards:

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| 1. A turbine speeds up from 34 rad/s to 89 rad/s in 2.5 seconds. What is the angular acceleration?  (22 rad/s/s) | 2. A drill slows from 145 rad/s to 54.0 rad/s with an angular acceleration of -1.80 rad/s/s. Through what angle did it go?  How many rotations?  (5030 radians, 801 rotations) |
| 3. A motor going 45.0 rad/s has an angular acceleration of 12.4 rad/s/s for 3.70 seconds. What angle does it go through? (251 rad) | 4. A hard drive speeds up from rest to 4200. RPM in 3.50 seconds. How many rotations does it make doing this? (122.5 rotations) |
| 5. A potter’s wheel is spinning at 71.0 RPM and stops in 5.30 revolutions. (a) What is its angular deceleration in rad/s/s? (-0.830 rad/s/s ) | 6. A hard drive slows from 7200. RPM to rest in 16.2 seconds. What distance does a point 3.10 cm from the center travel as it is slowing down?  (189 m) |