Angular Kinematics Practice   Name:_____ Block:_____ Date:_____

For all questions below, please show your work (PSYW). Answers devoid of calculations will not receive credit.

1. A wheel turns through an angle of 57.3 degrees, find this angular displacement in radians.

2. A wheel turns through an angle of 525 degrees, find this angular displacement in radians.

3. A wheel turns through an angle of 2.5 turns, find this angular displacement in radians.

4. A record rotates at a speed of 33.3 rotations per minute (RPM). Find this angular speed in rad/s.

5. A record rotates at a speed of 45 RPM. Find this angular speed in rad/s.

6. What's the angular speed of the Earth as it rotates on its North-South axis? (rad/s)

7. A ceiling fan rotates through 5.0 rotations in 10.0 seconds. What's its average angular speed in rad/s?

8. A ceiling fan, starting from rest, achieves a final speed of 13 rad/s during a time of 3.0 seconds. Calculate the ceiling fan's average angular speed, it's angular acceleration, and angular displacement. (3 Ans. 8,9,10)

11. A ceiling fan has an angular acceleration of 4.0 rad/s². If the fan starts at a speed of 2.0 rad/s², how many turns does it make while speeding up to its fastest operating speed of 15 rad/s?

12. A wheel starts out rolling at 1.5 rad/s and accelerates at 2.2 rad/s² for 6.0 seconds. Through what angle does the wheel rotate during this time?

13. A woman passes through a revolving door with a tangential speed of 1.8 m/s. If she is 0.80 m from the center of the door, what is the door's angular speed?

14. A softball pitcher throws a ball with a tangential speed of 6.93 m/s. If her arm is 0.660 m long, what is the angular speed of the ball before the pitcher releases it?

15. An athlete spins in a circle before releasing a discus. If he spins with an angular speed of 1.91 rot/s, what is the tangential speed of the discus if it's located 0.75 m from the athlete's axis of rotation?