

General Physics 1
Dr. Luttermoser's Class
Section VIII Sample Problems

1. A hard disk of radius 5.62 cm in a computer rotates at a top speed of 36.4 rad/s. Once your computer is turned on (i.e., it starts from rest), it takes 1.24 s for this top speed to be achieved. Assume the angular acceleration remains constant during this time. (a) What is this angular acceleration? (b) What is the tangential speed of a point on the circumference of this disk once it reaches top speed? (c) How many revolutions will the disk make before achieving this top speed?

2. A race car starts from rest and accelerates at a constant rate of 4.88 m/s^2 for 62.0 seconds as it travels around a circular track of radius 521 meters. (a) What is the angular acceleration of this car? (b) What is the angular speed of this car at 62.0 seconds? (c) What is the speed of this car at 62.0 seconds? (d) How far does this car travel during this time interval? (*Hint:* The linear speed and acceleration are in the tangential direction with respect to the track.)