SI Week 2

1. Convert the following degrees/angles into its counterpart
   1. 225°
   2. 3.37
   3. 638°
2. Read the following problems carefully and find the missing arclength, radius, or angle.
   1. If the radius of a record is .2 meters, and the arclength is 19 cm, what is the angle that these 2 distances make?
   2. A car is driving around a racetrack while testing its airbags. The racetrack is a perfect circle, and the distance from the center of the track to the car is 400 centimeters. The angle that the car drives from the beginning of it’s run is 96°, then it stops when it hits a wall. How far along the track did it drive in meters?
   3. If the distance around a circular racetrack is 400 meters, how far from the center of the track, in meters, is a runner after they have run 25% of the full track

The following problems involve linear and angular velocities. Find the asked value.

1. 1. In the Tour de France, Lance Armstrong rode his bike at a speed of 19 mph. This isn’t that fast when you realize he was on steroids at the time. The bike’s wheels have a radius of 1 foot. Find both the angular speed of the wheels in radians per minute, and the number of revolutions the wheels make per minute.
   2. Mercury has a diameter of 3032 miles. As the planet rotates on its axis, a point on its equator travels 58, 927 miles per year. Find the angular speed of the point on its equator in radians per year, and the number of rotations the planet makes per year.