

Angular Quantities

1. A wheel rotates 3 times. What is its angular displacement?
2. If a 30 cm radius wheel rotates through 3 radians how far has it rolled?
3. What is the angular displacement of the minute hand on a clock during a 30 minute interval.
4. Three hours pass by. What is the angular displacement of the Hour hand on the clock during this interval?
5. A carnival ride rotates through 4 radians of angular displacement. If the ride has a diameter of 4 meters, what is the path length that the passengers have moved in this time?
6. A merry-go-round rotates 10 complete revolutions. What path length has the passenger moved through if they are seated 2 meters from the ride's center?
7. Through how many radians has a 40 cm radius wheel rotated through if it has traveled 10 meters?

Tangential Velocity and Angular Quantities WS

1. The Earth rotates once every day. What is the velocity of a person on its surface, if the radius of Earth is 6 million meters?
2. What is the angular velocity of the minute hand on a clock?
3. What is the angular displacement of the Earth each hour? How far does a point on the surface of the earth move in one hour?
4. What is the angular velocity of a fan blade that rotates counterclockwise at 300 rpm? What is the angular displacement of the blade after 5 seconds?
5. What is the angular displacement of a 0.70 m diameter wheel that rolls 3 m clockwise?
6. Shaun White is observed to complete a 1080 (that's 3 complete revolutions) in 2 seconds. What is his angular velocity?

Centripetal Acceleration and Tangential Velocity WS.

1. Find the speed of the teeth of a 15 cm diameter sawblade that rotates at 1200 rpm
2. A passenger on an amusement park ride is 3 meters from the center of the ride. If the ride makes 60 revolutions every minute, what is the speed the passenger at the outside edge of the ride.
3. What is the centripetal acceleration of passenger?
4. Find the tangential velocity of a ball twirled on a 1.3 m long string if it makes 5 revolutions every 2 seconds.
5. Find the velocity of the moon in mph if it makes one revolution every 28 days and has an orbital radius around the earth equal to 250,000 miles.
6. Find the centripetal acceleration of a car that rounds an 80 m radius curve at 10 m/s.