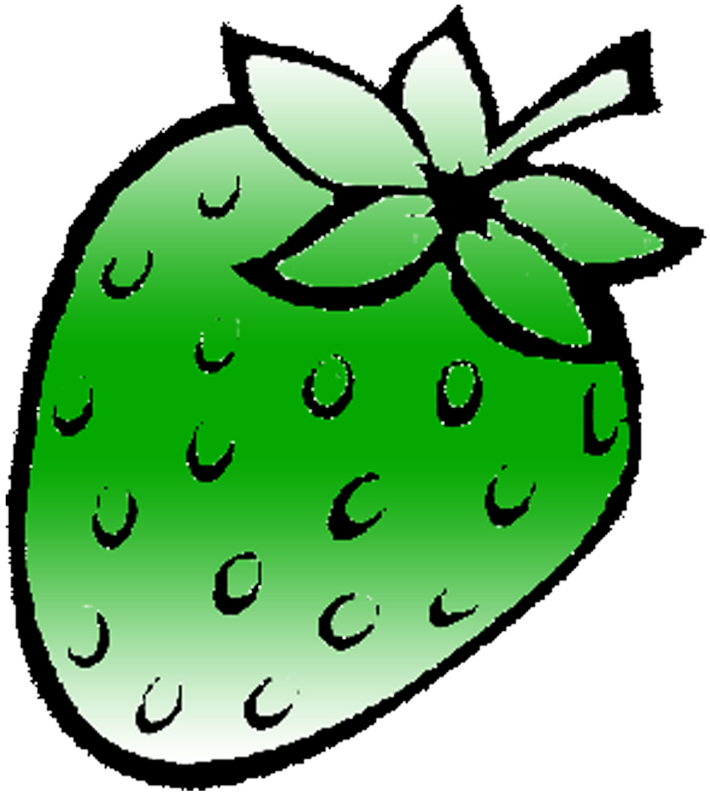
STRAWBERRY



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KINEMATICS OF PARTICLES

1. **The flywheel of an automobile acquires a speed of 2000 rpm in 45 sec. Find its angular acceleration. Assume uniform motion.**
   Ans. : 4.65 rad/s^2

2. **A flywheel starting from rest and accelerating uniformly performs 25 revolutions in 5 sec. Find its angular acceleration and its angular velocity after 10 secs.**
   Ans. : α = 2 rev/sec^2, ω = 20 rev/sec

3. **A rotor of a turbine had an initial angular velocity of 1800 rpm. Accelerating uniformly it doubled its velocity in 12 sec. Find the revolutions performed by it in this interval.**
   Ans. : 540 revolutions

4. **The angular acceleration α (taken clockwise as positive) of a flywheel is given by α = - 4t in rad/sec^2 where t is in sec. If the initial angular speed of rotation is 3000 rpm clockwise,**
   (a)Determine the time required for the angular speed to change to 3000 rpm anticlockwise
   (b) Determine the total number of revolutions completed by the flywheel during this time.
   Ans. : (a)17.72 sec (b)539.17 rev

5. **A speed of rotor decreases uniformly from 2000 rpm to rest in 300 seconds. Determine the angular deceleration and the number of radians before coming to rest.**
   Ans. : α = -0.698 r/s^2; θ = ($10^4/\pi$) rad