

**PHYSICS 101: HOMEWORK 1**

Name: \_\_\_\_\_

1. "Timmy" starts from rest on his bicycle at the top of a hill. When he has then reached a final velocity of 10m/s. What is "Timmy's" acceleration?
2. A ball is rolling at 10.0m/s over level ground when it encounters a ramp, which gives it an acceleration of 1.00m/s<sup>2</sup>. If the ramp is 5.00m long, what is the final velocity of the ball when it reaches the top of the ramp?
3. Ball's tangential velocity increases at 1.00m/s<sup>2</sup> at a certain RPM and gear. How far, starting from rest, will the ball travel in the time of 10s?
4. How long a ball, if the ball accelerates at 10.0m/s<sup>2</sup>, how long will it take the ball to reach a velocity of 25.0m/s?
5. Big Ball is on his Harley and moving at 10.0m/s. He then accelerates to a velocity of 25.0m/s over a distance of 10.000m. What is Big Ball's acceleration?
6. "Chad's" car is moving at 10.0m/s when he suddenly accelerates his car at 10.0m/s<sup>2</sup> for 1.00s. How far did Chad's motorcycle travel while he was accelerating?

B.C. Derive the final two formulas for acceleration in your formula sheet using the original three formulas we have already talked about. Do this on the back.