

PHYS 3200 - Fall 2025

End of Topic Quiz 1

September 9, 2025

Name and ID #:

Instructions:

1. You may use:
 - A calculator that has no internet connection, and no stored reference material. Connecting to the internet or using reference material other than that provided on the equation sheet is cheating and you will fail the exam if you do so.
 - Notes.
 - Writing utensil: pencil and eraser are best.
2. Always start word problems with a drawing of the situation.
3. If you have a question about a problem (confused about the situation, need some missing piece of information, etc.), please raise your hand and ask!
4. Box your final answer for each part.
5. Credit will not be given if your answers are too messy or obscure to read. Remember - a grader who isn't squinting and spending extra time trying to decipher mysterious scratches is a happy grader.
6. This quiz must be turned in by the end of the class period.

1. Find the velocity $v(t)$ and position $x(t)$ of a particle of mass m that is subject to a resistive or frictional force (drag) that is proportional to velocity $F_f = -\alpha v$.

2. A particle is subject to an oscillatory force $F = F_0 \cos(\omega t + \phi)$, where F_0, ω and ϕ are positive constants. Calculate the velocity $v(t)$ and the trajectory $x(t)$ in terms of $m, F_0, \omega, \phi, v_0$ and x_0 .