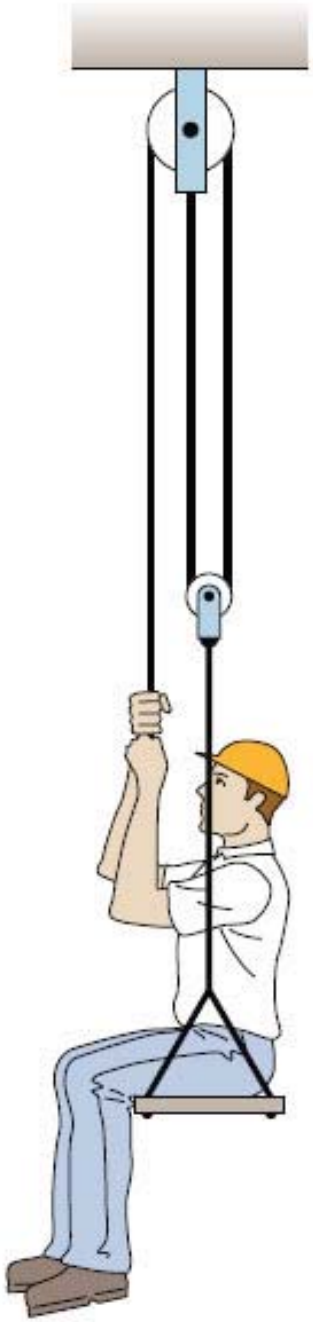
Lecture 20

ME 231: Dynamics

Question of the Day

The ***170-lb*** man in the bosun's chair pulls on the rope with ***60 lb*** of ***force***.

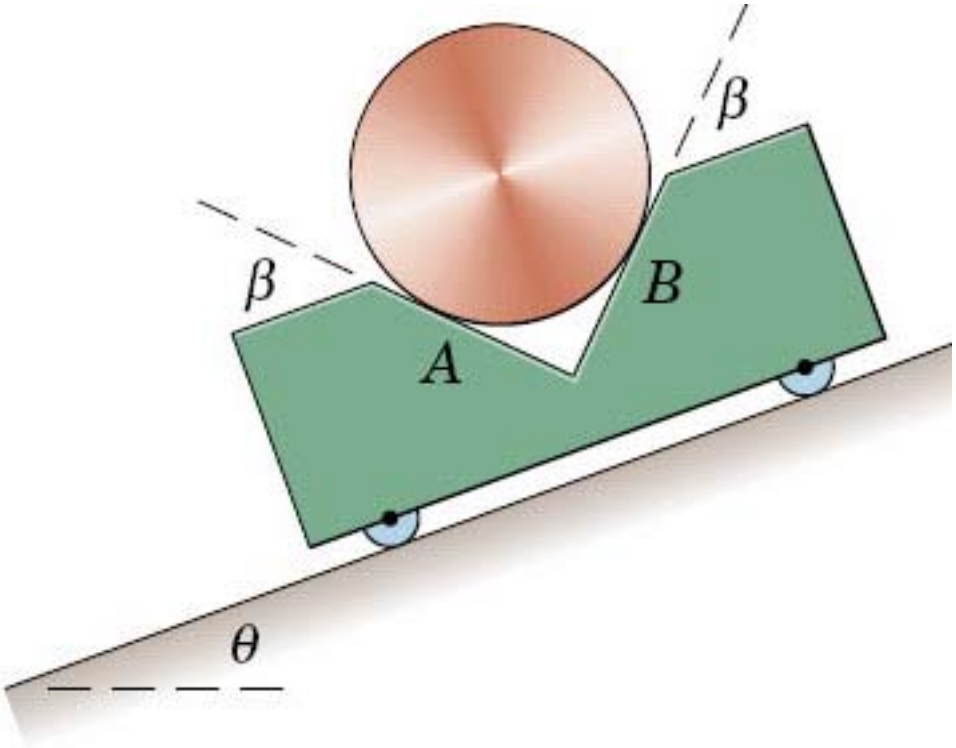
Determine his ***acceleration***.



Outline for Today

- Question of the day
- Rectilinear motion exercises
- Exam 1 solution
- Answer your questions!

Rectilinear Motion: Exercise 1



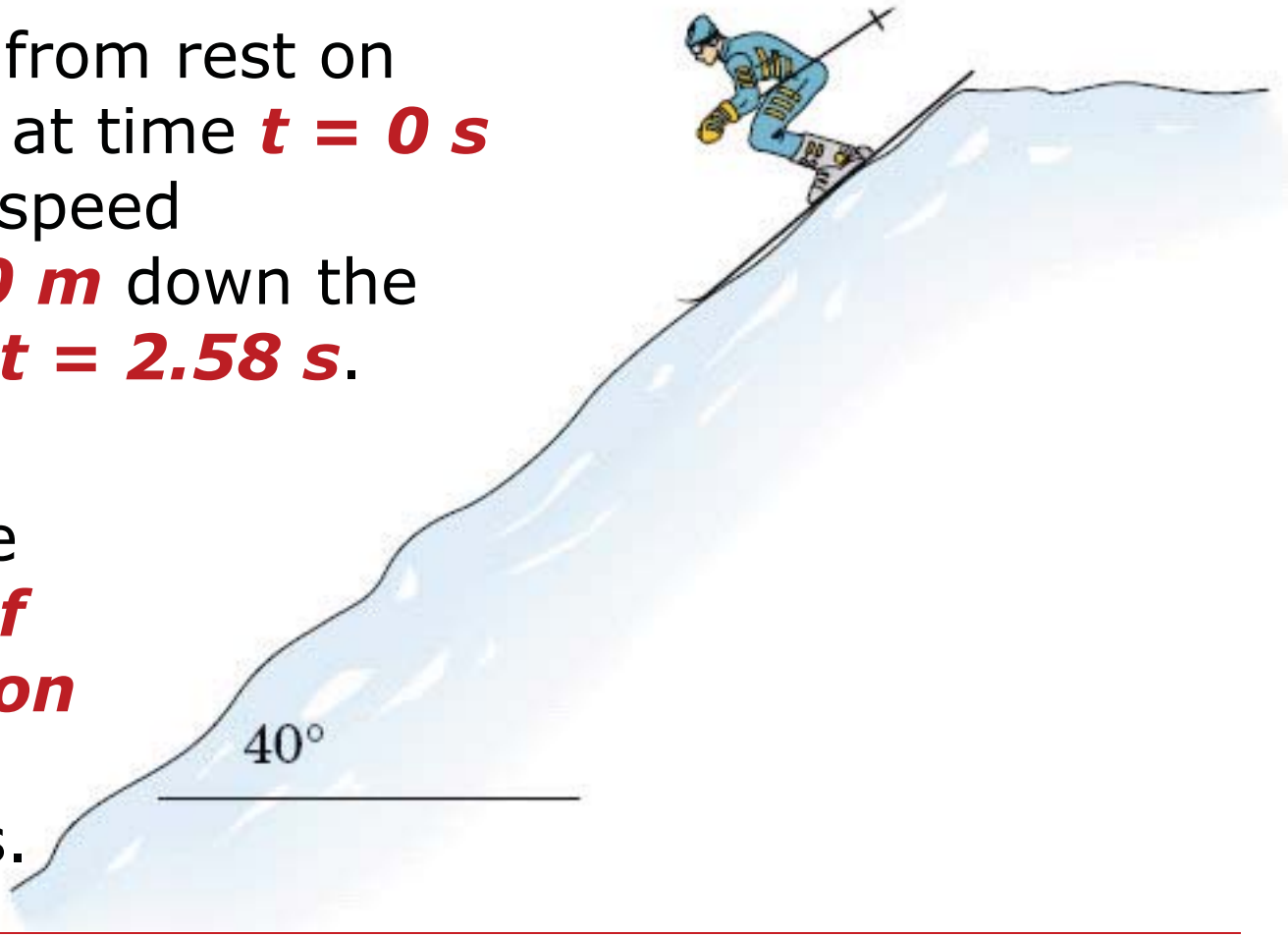
A cylinder rests in a supporting carriage where $\beta = 45^o$ and $\theta = 30^o$.

Calculate the maximum ***acceleration*** a up the incline so that the cylinder does not lose contact with the carriage.

Rectilinear Motion: Exercise 2

A skier starts from rest on the 40º slope at time ***t = 0 s*** and passes a speed checkpoint ***20 m*** down the slope at time ***t = 2.58 s***.

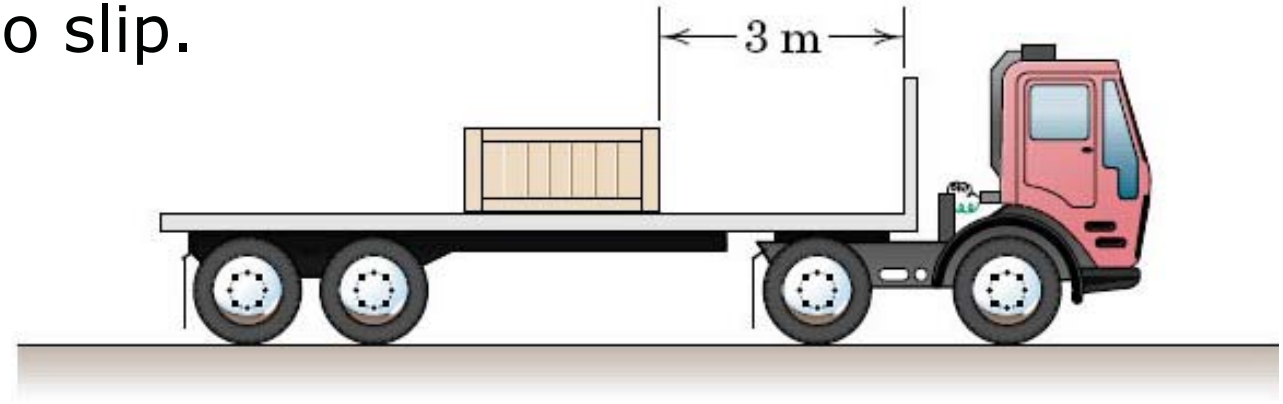
Determine the ***coefficient of kinetic friction*** between the snow and skis.



Rectilinear Motion: Exercise 3

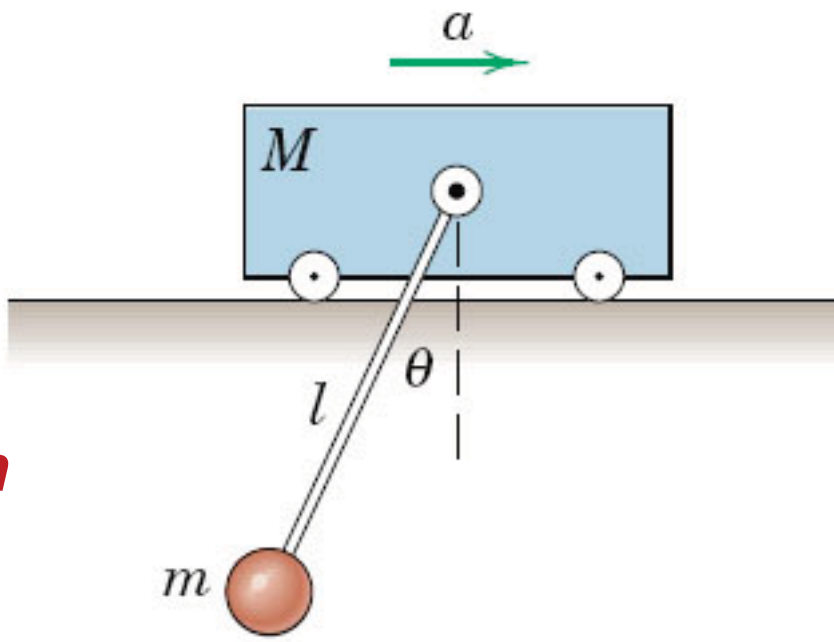
The ***coefficient of static friction*** between the flat bed and crate it carries is ***0.30***.

Determine the minimum stopping ***distance*** s which the truck can have from a speed of ***70 km/h*** with constant ***deceleration*** if the crate is not to slip.



Rectilinear Motion: Exercise 4

A bar of ***length l*** and negligible ***mass*** connects the cart of ***mass M*** and the particle of ***mass m***. The cart has a constant ***acceleration a*** to the right.

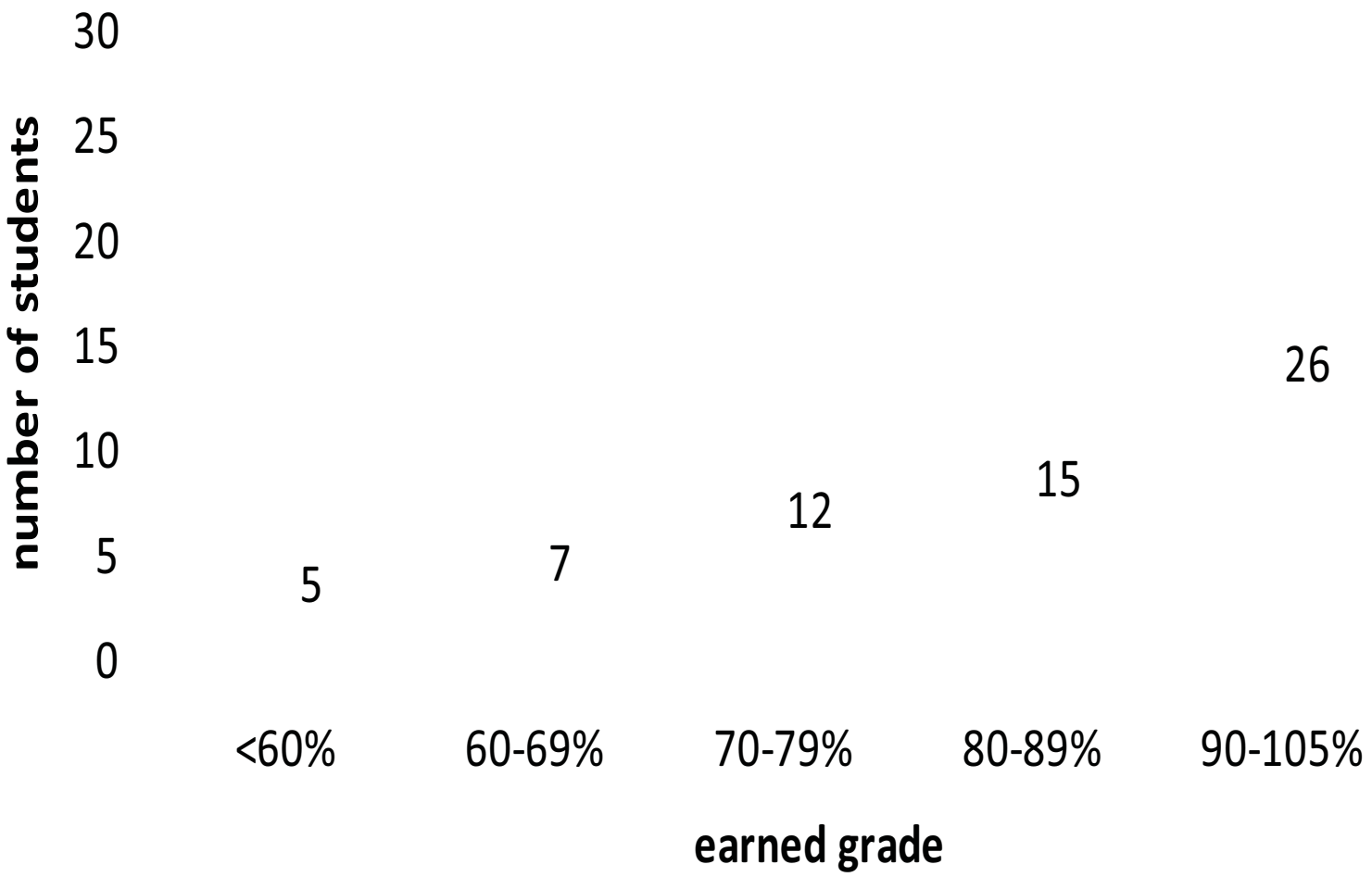


What is the resulting steady-state ***angle θ*** which the freely pivoting bar makes with the vertical?

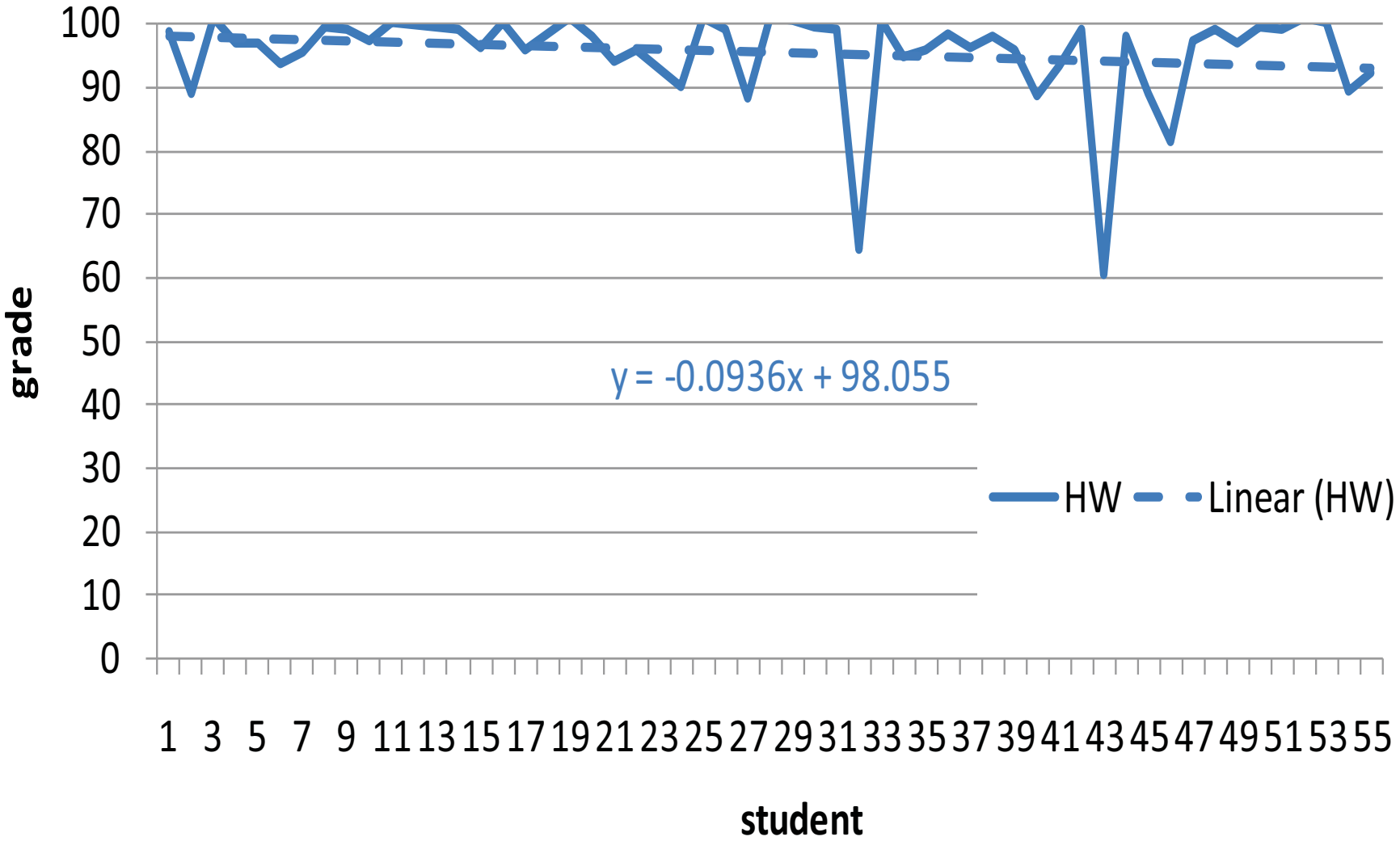
Outline for Today

- Question of the day
- Rectilinear motion exercises
- Exam 1 solution
- Answer your questions!

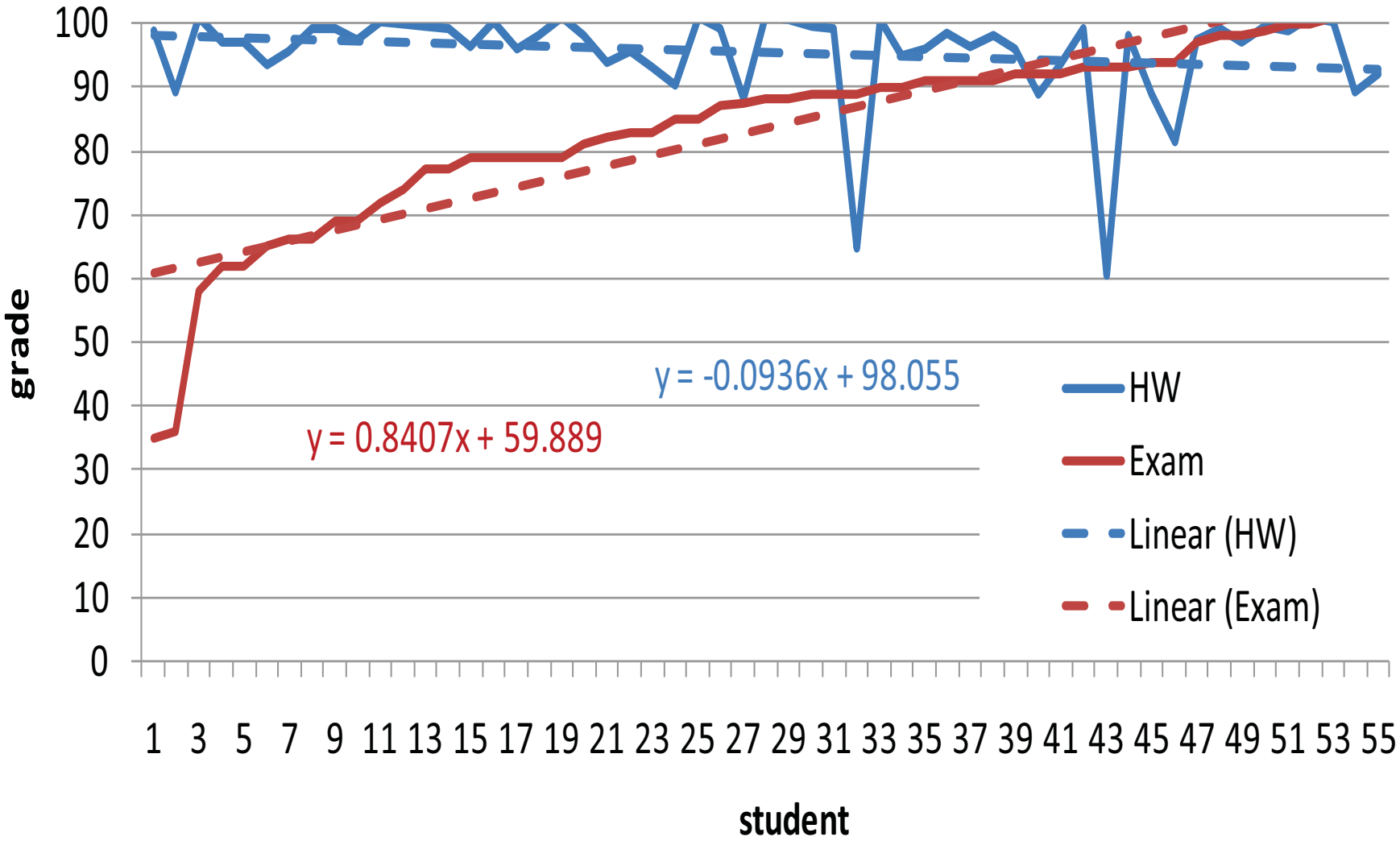
Exam 1 Grades



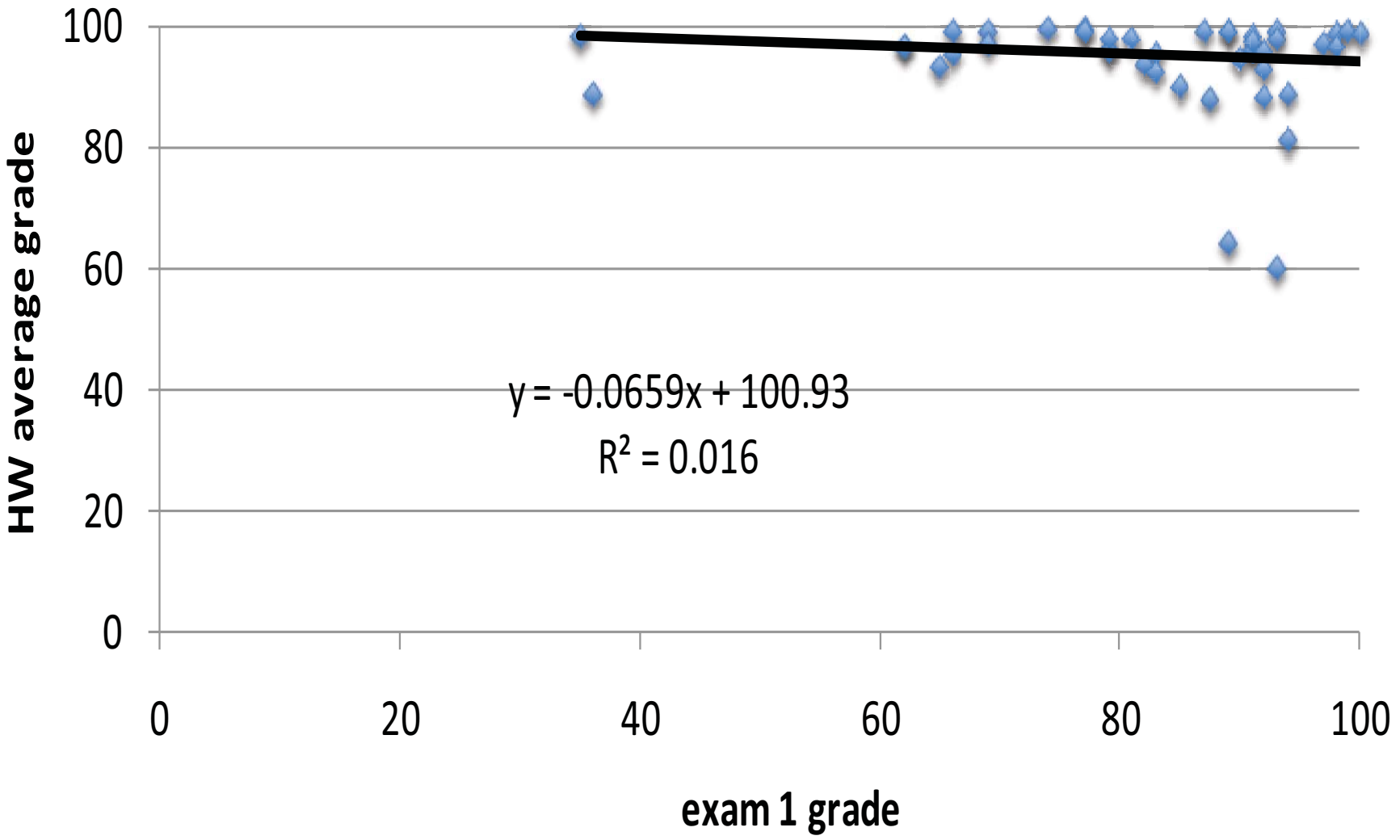
Homework and Exam 1 Grades



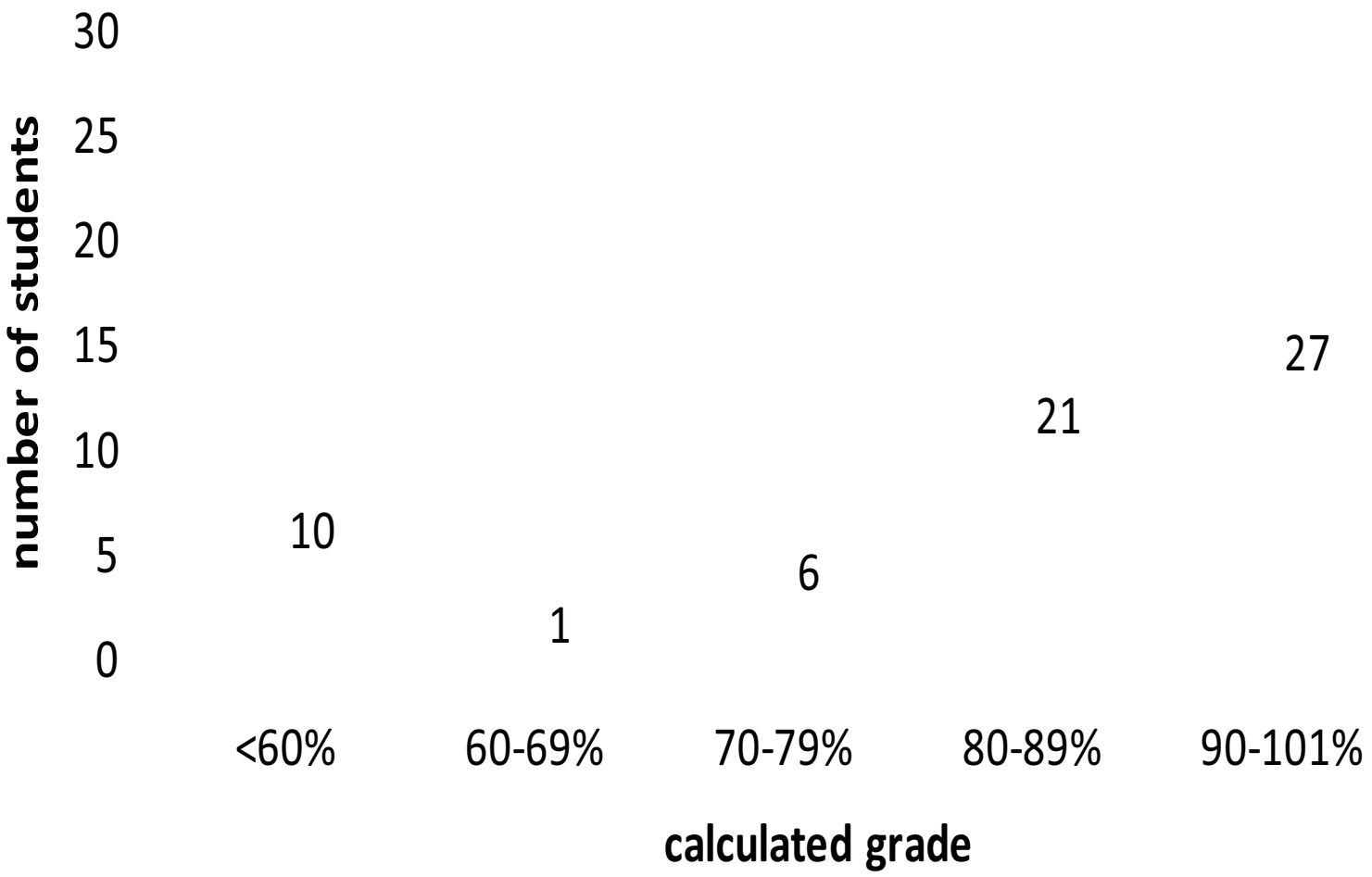
Homework and Exam 1 Grades



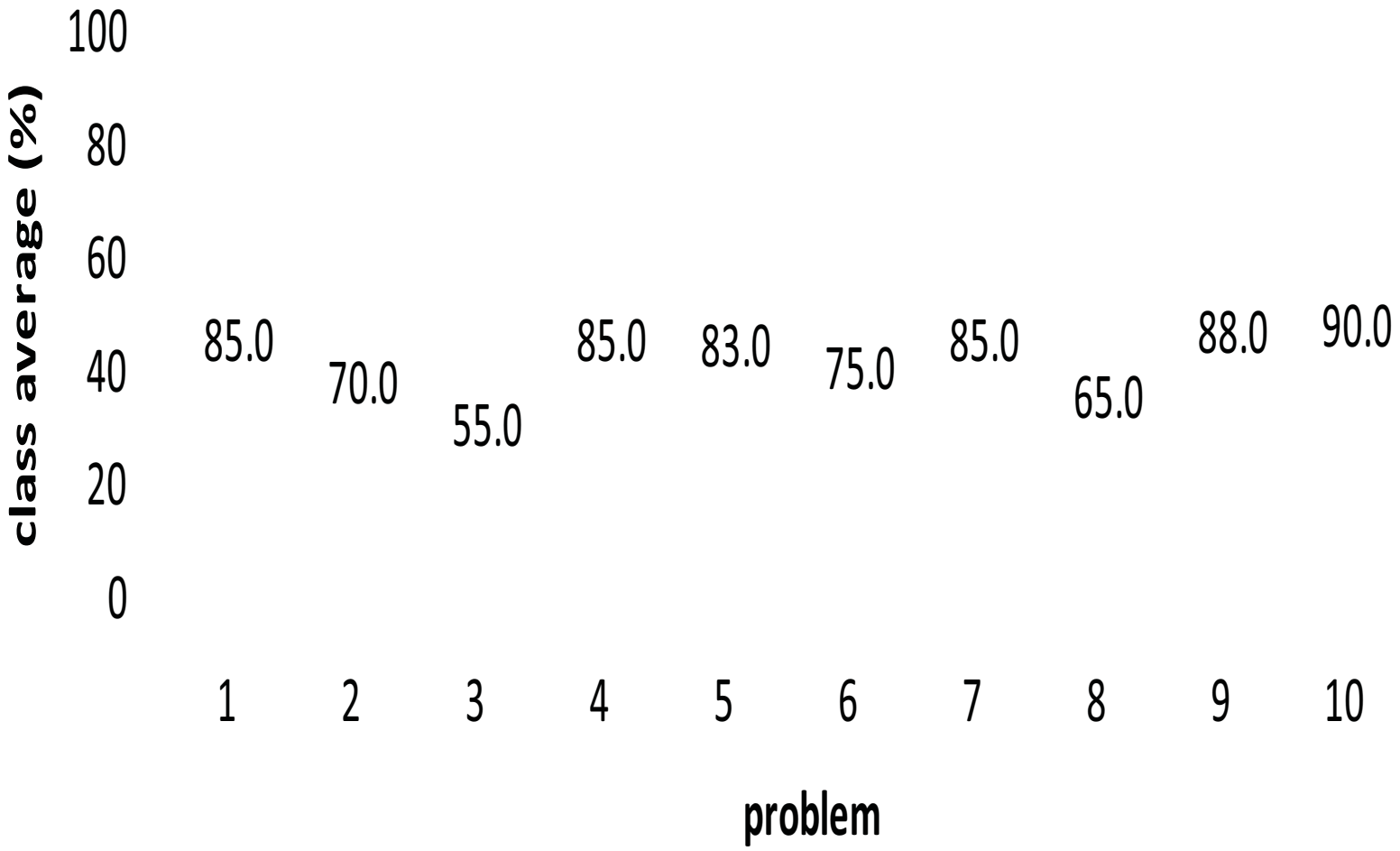
Homework and Exam 1 Grades



"Final" Course Grades (through HW #5 and Exam 1)



Exam 1 Problem Grades



Outline for Today

- Question of the day
- Rectilinear motion exercises
- Exam 1 solution
- Answer your questions!

For Next Time…

- Continue Homework #7 due ***next Wednesday*** (10/17)
- Read Chapter 3, Section 3.2