

USEFUL RESOURCES

The updates, homework assignments, and useful links for APC can be found on SchoolNova's web page:
https://schoolnova.org/nova/classinfo?class_id=adv_phy_club&sem_id=ay2020

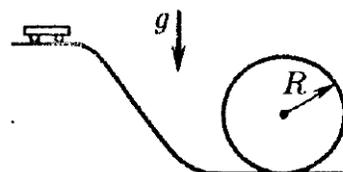
The practical information about the club and contacts can be found on the same web page.

TODAY'S MEETING

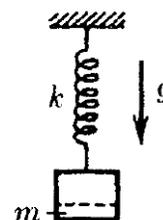
Today's homework is about energy conservation law.

HOMEWORK

- Solve the following problems from the previous $F = ma$ exams:
 - 12 (2009: https://www.aapt.org/physicsteam/2010/upload/2009_F-ma.pdf)
 - 14 (2010: https://www.aapt.org/physicsteam/2010/upload/2010_Fma.pdf)
 - 18 (2011: <https://www.aapt.org/physicsteam/2012/upload/WebAssign-exam1-2011-1-4.pdf>)
 - 8, 19 (2012: <https://www.aapt.org/physicsteam/2013/upload/exam1-2012-unlocked.pdf>)
- Two identical bodies are given the same initial velocity at the same angle to the horizon. One of the bodies moves freely while the other one moves without friction in a straight tube. Which of the bodies will reach greater height?
- A ball is hung on a string. The string is brought to the horizontal position and then the ball is let go. At which point of the trajectory is the acceleration of the ball directed vertically upwards? Vertically downwards? Horizontally?
- A cart goes down the smooth rails which are curved in a vertical loop of radius R . The cart starts moving from rest at height h above the lowest point and stays on the rails for the whole way. What is the minimal h such that it is possible?



- A block is in equilibrium on a vertical spring with spring constant k . A part of this block of mass m is detached from it. Up to what height will the rest of the block go?



- Two bodies of masses m_1 and m_2 are connected with an undeformed spring and lie on a horizontal plane. Find what minimal constant force should be applied to the left body so that the other body eventually starts moving. Friction coefficient is μ .



FOR THE NEXT MEETING

IMPORTANT: The next club's meeting is at 3:00pm, via Zoom, on Sunday, January 24.