

Physics 121 – September 28, 2009

Today:

- Finish frictional force examples
- Discuss work and kinetic energy

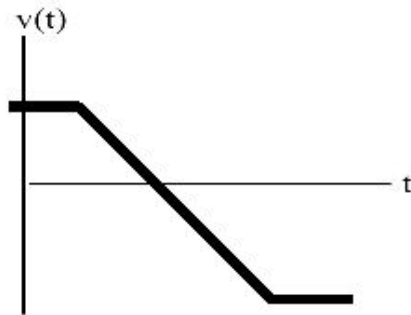
This week:

- Finish reading Chap 6 (Work, Energy, and Power)
- Homework problems due Friday, Oct 2
Chap 6, # 13, 17, 20, 21, 22, 23, 27, 30
- Review for first exam (exam date is Monday Oct 5, will cover material in Chap's 1-5)

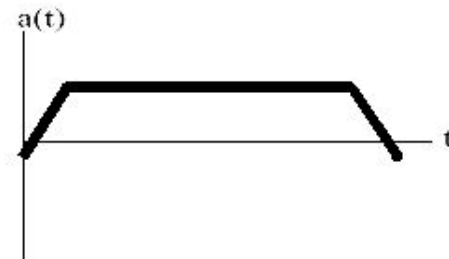
iclicker exam review question 1:



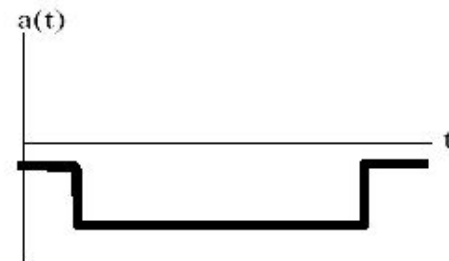
4. (5 pts) A particle moves in one dimension along the x axis and its speed varies with time according to the figure shown below. Which of the graphs **A**, **B**, or **C** best describes the acceleration of the particle?



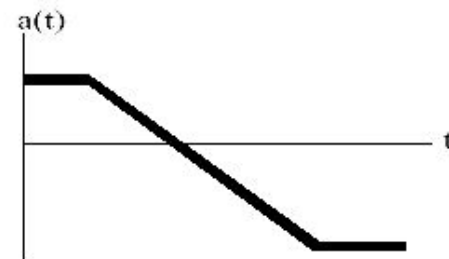
A



B

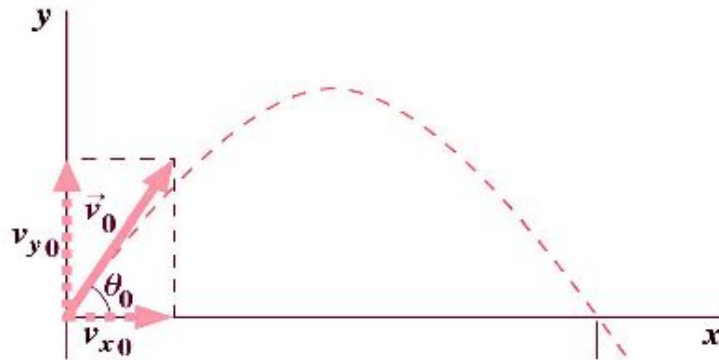


C



iclicker exam review question 2:

A soccer ball is kicked and the trajectory of the ball is shown in the figure below. Air drag and lift can be neglected. The initial velocity is $v_0 = 20.0 \text{ m/s}$, and the launch angle is $\theta_0 = 50^\circ$.

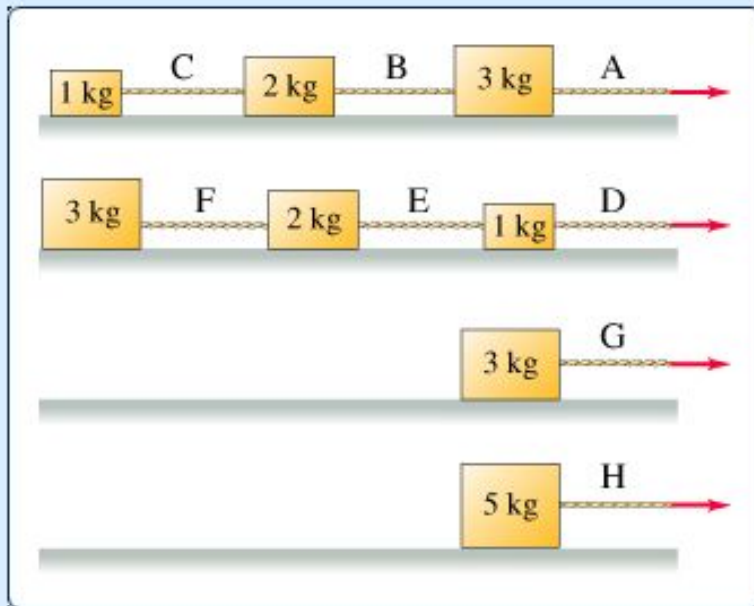


5. (5 pts) What is the acceleration of the golf ball just after it leaves the ground, in vector component form?

- A. $\vec{a} = 0$
- B. $\vec{a} = (12.9 \text{ m/s}^2)\hat{i} + (15.3 \text{ m/s}^2)\hat{j}$
- C. $\vec{a} = (20.0 \text{ m/s}^2)\hat{i} - (9.8 \text{ m/s}^2)\hat{j}$
- D. $\vec{a} = 0\hat{i} - (9.8 \text{ m/s}^2)\hat{j}$

Kinetic Friction Ranking Task

Below are eight crates of different mass. The crates are attached to massless ropes, as indicated in the picture, where the ropes are marked by letters. Each crate is being pulled to the right at the same constant speed. The coefficient of kinetic friction between each crate and the surface on which it slides is the same for all eight crates.



Part A

Rank the ropes on the basis of the force each exerts on the crate immediately to its left

Rank from largest to smallest. To rank items as equivalent, overlap them.

A B C D E F G H

largest

smallest

2.02

The correct ranking cannot be determined.

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A boy holds a 3-kg sack of sugar at arm's length for 5 s. His arm is 1.5 meters above the ground. The work (in joules) done by the boy on the sack of sugar while he is holding it is:

- A. 0 J
- B. 15 J
- C. 30 J
- D. 45 J
- E. 150 J