

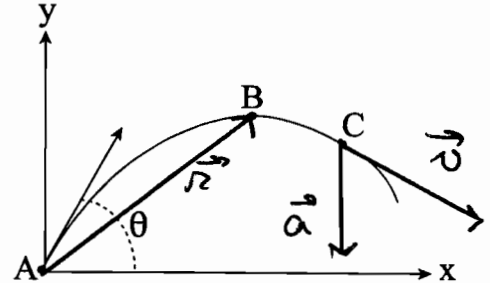
## EXAM 2

Name: \_\_\_\_\_ Student ID #: \_\_\_\_\_

TA (circle one): Akiko Golda Josh Mahamadou Matt Victoria

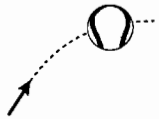
A. [10 pts.] The drawing shows points (A, B, C) along the path of an object thrown with an initial velocity  $\vec{V}_0$ . There is no air resistance.

1. Draw a position vector to the location of the object at B and label it  $\vec{r}$ .
2. At C, draw the acceleration and instantaneous velocity vectors and label them..
3.     A     At which location (A, B, or C) is the instantaneous velocity greatest?
4.     B     At which location (A, B, or C) is the instantaneous velocity least?

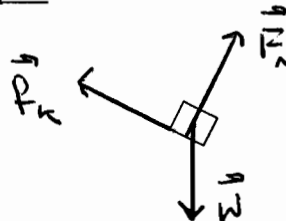
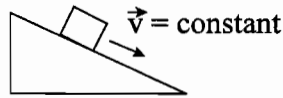


B. To the right of each drawing of a physical situation, construct a free-body diagram of the object shown.

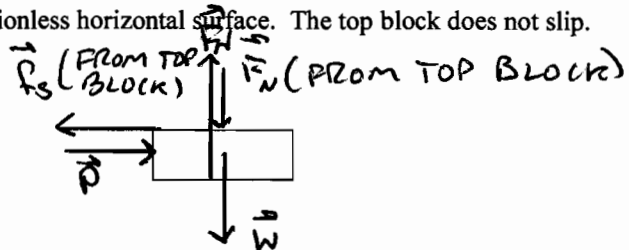
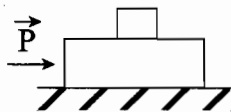
1. [2 pts.] Baseball in flight (no air resistance).



2. [6 pts.] Block traveling down an incline at constant speed.



3. [10 pts.] Two blocks being pushed across a frictionless horizontal surface. The top block does not slip.



C. [6 pts.] Imagine a solar system consisting of three planets. Planet A is identical to the Earth; planet B has the same mass as the Earth but half the Earth's radius; and planet C has double the mass of the Earth and the same radius as the Earth. A young girl weighs 300 N on Earth.

1.     300N     would be the weight of the girl on planet A.
2.    1200N    would be the weight of the girl on planet B.
3.    600N    would be the weight of the girl on planet C.