

Phys171 - Thu 2/1

Informal discussion session(i.e. a room for you to meet in)
the TA will be available 2pm-3pm for discussion

Th 130pm-330pm Room: MTH B0429

- Who has not yet managed to get the Knight book?
- No office hour next Monday
- Safa Montesharrei will do sample problems on Monday
10am-10.50am
- Erin Rericha will teach for me Tuesday
- I will be back Thursday
- NOTE: HW due on Fri

Useful equations

for constant acceleration a :
(for example gravitational acceleration)

$$a(t) = a$$
$$v(t) = v_i + at$$
$$x(t) = x_i + v_i t + \frac{1}{2} at^2$$
$$t = \frac{v_f - v_i}{a}$$
$$v_f^2 = v_i^2 + 2a(x_f - x_i)$$

Equation for falling object

Vertical direction: y

Gravitational acceleration: $g = 9.8 \text{ m/s}^2$

Object starts at position y_i with velocity v_i

At time t , it is at position $y(t)$

$$y(t) = y_i + v_i t + \frac{1}{2} g t^2$$

I drop a stone into a river from a bridge on Mars, and it takes 2 seconds to reach the sand. At the next bridge it takes 4 seconds. How much higher is the second bridge than the first bridge

1. 2 times as high
2. 4 times as high
3. 3 times as high
4. Insufficient information

You are throwing a ball straight up in the air.
At the highest point, the ball's

(from E. Mazur, "Peer Instruction: A users manual", Prentice Hall 1997)

1. velocity and acceleration are zero
2. velocity is nonzero but its acceleration is zero.
3. acceleration is nonzero, but its velocity is zero.
4. velocity and acceleration are both nonzero.

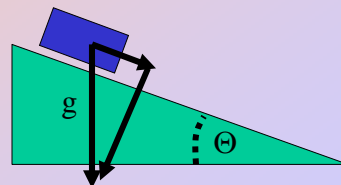
Object on inclined planes

Gravitational acceleration g
pulls objects toward earth
center

BUT: Surface CONSTRAINS
direction of motion to angle
 Θ relative to horizontal

-> Coordinate system: x along
the incline, y perpendicular

-> Vector is the sum of two
vectors one in x , one in y
direction



$$\text{Acceleration } a = g \sin(\Theta)$$

To Read

READ for FRI: End of Chapter 3

Next week: Chapter 4 through Thursday