
physics 2nd Kanti study sheet for the test on the 12/21/2010author:
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1D KINEMATICS

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INFO

This is a study sheet by Linus Metzler about 1D Kinematics, which was mentioned in the 2nd Kanti at Mr. Geist. There is no claim for completeness. All warranties are disclaimed.



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STUDY PART

See also <http://www.physicsclassroom.com/class/1dkin/>

To calculate formulas use <http://wolframalpha.com>

VELOCITY

$$v = \frac{\Delta x}{\Delta t} = \frac{x_{\text{final}} - x_0}{\Delta t}$$

ACCELERATION

$$a = \frac{\Delta v}{\Delta t}$$

RULE OF THUMB

If an object is slowing down, then its a is in the opposite direction of its motion.

GRAPHS

X-T

$$\text{slope} = v = \frac{\Delta x}{\Delta t} = \frac{\text{rise}}{\text{run}}$$

V-T GRAPHS

$$\text{slope} = a = \frac{\Delta v}{\Delta t} = \frac{\text{rise}}{\text{run}}$$

$\text{area} = \text{displacement}$

EQUATIONS

$$v(t) = \pm v_0 \pm at$$

$$x(t) = \pm x_0 \pm v_0 t \pm \frac{at^2}{2}$$

COMBINATION

$$v^2 - v_0^2 = \pm 2a(x - x_0)$$

FREE FALL

$$v_x = gt$$

$$d = 0.5gt^2$$

SOURCES

gsw's handouts