Kinematics Review

Tuesday, October 20, 2015 10:25 AM

2d M.E. ← pencil, Equation sheet

2d written

Ch_03 Out sem 1 2016

$v = \frac{d}{t}$ $d = v \cdot t$

$h \cdot b$ = area

PHYSICS 11

NAME: _____

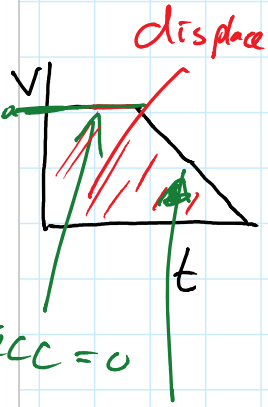
magnitude magnitude direction

Kinematics Objectives & Outline

Objectives: By the end of this unit you should be able to:

- ❑ differentiate between scalar and vector quantities
- ❑ define *distance, displacement, speed,* and *velocity*
- ❑ construct displacement-versus-time graphs, based on data from various sources (e.g., from an experiment)
- ❑ use a displacement-versus-time graph to determine:
  - displacement and distance
  - average velocity and speed
  - instantaneous velocity and speed
- ❑ define *acceleration*
- ❑ construct velocity-versus-time graphs, based on data from various sources (e.g., from an experiment)
- ❑ use velocity-versus-time graphs to determine
  - velocity
  - displacement
  - average velocity
  - acceleration
- ❑ solve problems involving
  - displacement
  - time
  - average velocity
- ❑ solve a range of problems for objects with constant acceleration involving
  - displacement
  - initial velocity
  - final velocity
  - acceleration
  - time

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



Date	Textbook Section	Homework
Oct. 7	3.1	➢ Graphing Motion Investigation
Oct. 8	3.2	➢ Uniform Motion Investigation ➢ P. 58 #8, 9
Oct. 13	4.1	➢ Changing Velocity HO ➢ P. 59 #4, 5, 9, 10, 12
Oct. 14	4.2	➢ P. 66-69 #1-12
Oct. 15	**Quiz**/ 4.2 con't.	➢ P. 72-74 #13-20
Oct. 16	4.2 con't.	➢ P. 75-79 #21-30
Oct. 19	Wrap Up	➢
Oct. 20	**Test**	

➢ Other details of class activities for each day can be found on my website http://sloanzone.weebly.com/

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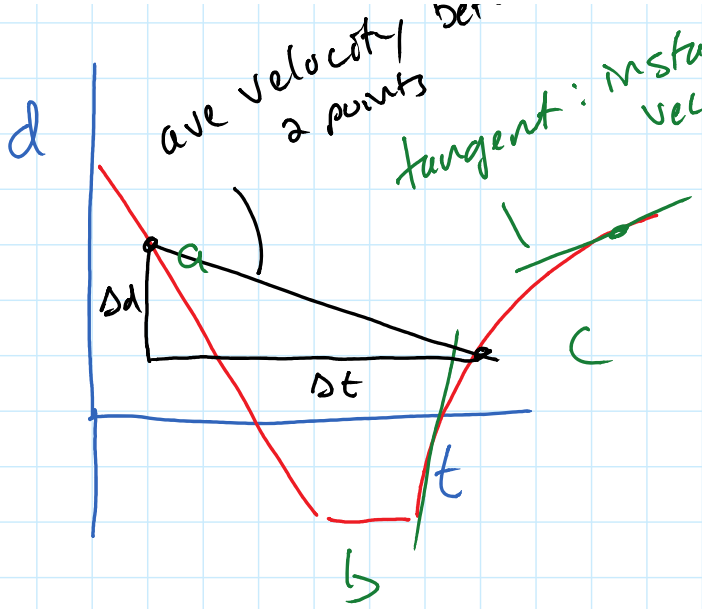
between

instantaneous



a) slope = velocity
negative, backwards

b) stopped

c) steep slope fast
less steep - slower

Equations

No acceleration

$v = \frac{\Delta d}{\Delta t}$ - constant velocity

Acceleration

$V_f = V_0 + at$

$d = V_0 t + \frac{1}{2} a t^2$

$V_f^2 = V_0^2 + 2ad$

$d = \frac{1}{2}(V_f + V_0)t$

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

$g = -9.8\ m/s^2$ (gravity)

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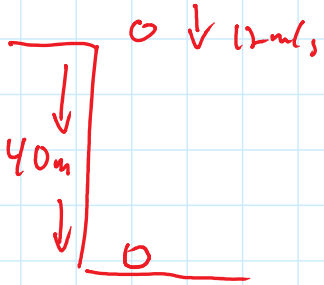
1) Determine the final velocity of a rock thrown down at 40 m at 12 m/s.

$V_0 = 12$ m/s



$V_0 = 12\ m/s$

$V_f =$

$a = -9.8\ m/s^2$

$t =$

$d = -40\ m$

$V_f^2 = V_0^2 + 2ad$

$= 12^2 + 2(-9.8)(-40)$

$= 144 + 784$

$V_f^2 = 928$

$V_f = 30.5\ m/s$

2) A car acc from rest to 55 km/H while covering 200m. How long did it take?

$V_0 = 0$

$V_f = 55\ km/H$

$a =$

$t =$

$d = 200\ m$

$55\ \frac{km}{H}\left(\frac{1\ H}{3600\ s}\right)\left(\frac{1000\ m}{1\ km}\right) = 15.3\ m/s$

$d = \frac{1}{2}(V_f + V_0)t$

$200 = \frac{1}{2}(15.3 + 0)t$

$200 = 7.7\ t \quad t = 26.5\ s$