Formula Notes

The Greek letter Δ (capital delta)

When you see Δ in science, it indicates that there is a change in some value.

You have $72 on Monday and by Friday you have $125. Find Δ$

Δ$ = (final amount – initial amount)

Δ$ = ($125 - $72)

Δ$ = $53

This morning the temperature was 70ᵒ. Now it is 75ᵒ. Find ΔT.

ΔT = (Tf – Ti)

ΔT = 75ᵒ - 70ᵒ

ΔT = 5ᵒ

Your average in history was 92. Now it is 84. Find ΔA.

ΔA = Af- Ai

ΔA = 84 – 92

ΔA = -8

For Displacement, we will now use the following formula:

Δx = final placement – initial placement

Δx = xf - xi

How to use a formula for a word problem:

Step 1: Pull out important information from word problem using units.

Step 2: Decide what you are looking for

Step 3: Find the appropriate formula using step 1 and 2.

Step 4: Plug in information into the formula

Step 5: Solve for what you are looking for.

Review Velocity:

v = Δx / t

Δx = vt

Replacing Δx with final minus initial:

xf – xi = vt and xf = vt + xi

Velocity = the rate of change of the position of an object.

Acceleration

Acceleration is the rate of change of the velocity of a moving object.

Acceleration is the speeding up and slowing down of an object. If the object is changing it’s speed, it is accelerating.

a = Δv / t

since Δv = vf – vi , we get

a = vf – vi / t and vf = at + vi

Units for Acceleration:

a = change in velocity (measured in m/s) divided by time (measured in s)

so, a = m/s/s………… keep, change, flip, to get m/s2

Units for acceleration is m/s2

Practice:

1. A car has an initial velocity of 10 m/s, accelerates at a rate of 50 m/s2 for 3 seconds. What is its final speed?

vi = 10 m/s

a = 50 m/s2

t = 3 s

vf= ?

vf = at + vi

vf = (50 m/s2)(3 s) + (10 m/s)

vf = 160 m/s

1. A lizard running at 2 m/s takes 4 seconds to increase his speed at 10 m/s. What is the lizard’s acceleration?

vi = 2 m/s

t = 4 s

vf = 10 m/s

a = ?

a = Δv/t

a = 10 m/s – 2 m/s

4 s

a = 2 m/s2