Good Afternoon

Please have a seat and take out your CYU questions from previously.

Let's review for Chapter 14!

Formulas:

$v = d / t$ $d = v \times t$ slope = rise / run

stopping distance = braking distance + reaction distance

Practice #1

You are going on a trip to visit your grandparents, 400 km away.

a) If you have 5 hours to reach your destination, how fast will you have to travel in km/h?

$d = 400\,km$

$v = ?$

$t = 5h$

$v = \frac{d}{t} = \frac{400\,km}{5h} = 80\,\frac{km}{h}$

b) What velocity would you want to maintain if you had 6 hours to travel 400 km?

$d = 400\,km$

$v = ?$

$t = 6h$

$v = \frac{d}{t} = \frac{400\,km}{6h} = 66.\overline{6}\,\frac{km}{h}$

$\doteq 67\,\frac{km}{h}$

Analysis:

1. What happens to the speed as the mass increases for each height?

2. What happens to the speed as the height doubles? (does it double as well?)

Practice #2

Which of the following will go farther, (a) or (b)?

a) travelling 100 km/h for 4.5 hours?

$d = ?$

$v = 100 \frac{km}{h}$

$t = 4.5\ h$

$d = vt$

$= 100 \frac{km}{h} \times 4.5\ h$

$= 450\ km$

b) travelling 90 km/h for 6 hours?

$d = ?$

$v = 90 \frac{km}{h}$

$t = 6h$

$d = vt$

$= 90 \frac{km}{h} \times 6h$

$= 540\ km$

B

Practice #3

How far can a long-distance trucker travel in three 12-hour days if he travels an average of 90 km/h?

$d = ?$

$v = 90 \frac{km}{h}$

$t = 12h \times 3 = 36h$

$d = vt$

$= 90 \frac{km}{h} \times 36h$

$= 3240 km$

Practice #4

Imagine you and your friend are both travelling to the same place, which is 250 km away. If she makes the trip in two hours and you make it in three hours, what are your average velocities?

$d = 250 km$

$t = 3h$

$v = ?$

You

$v = \frac{d}{t} = \frac{250 km}{3h}$

$\doteq 83 \frac{km}{h}$

Friend

$d = 250 km$

$t = 2h$

$v = ?$

$v = \frac{250 km}{2h}$

$= 125 \frac{km}{h}$

Practice #5

A radar gun measures a car's velocity and calculates that it is travelling 0.050 km in 0.00042 h. How fast is the car going in km/h?

$d = 0.050\text{km} \times 1000 = 50\text{ m}$

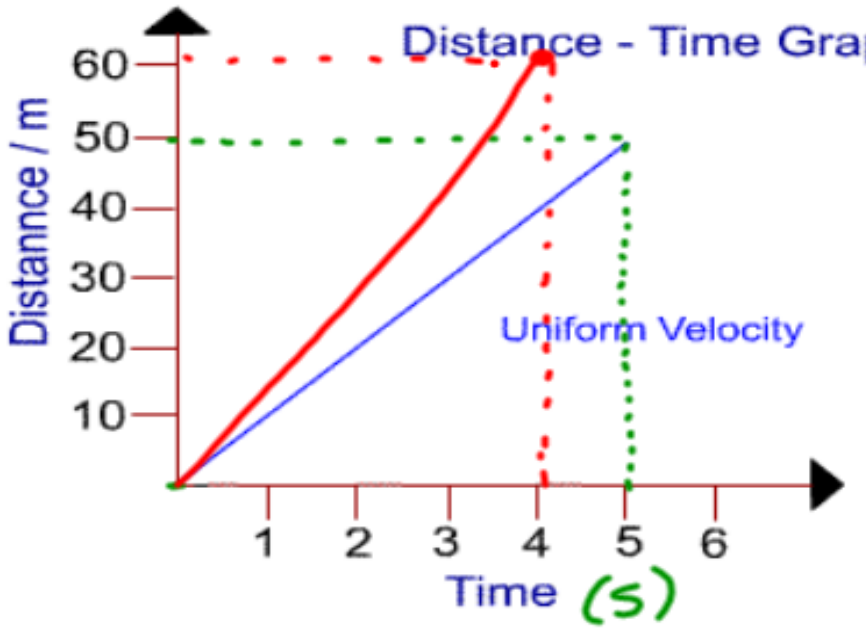
$t = 0.00042\text{h} \times 3600 \doteq 1.5\text{ s}$

$$v = \frac{d}{t} = \frac{0.050\text{km}}{0.00042\text{h}}$$

$$\doteq 119\frac{\text{km}}{\text{h}}$$

Practice #6

a) Using the graph, determine the velocity shown.



slope = $\frac{\text{rise}}{\text{run}}$

$v = \frac{d}{t} = \frac{50\,m}{5\,s} = 10\,\frac{m}{s}$

b) If the same object travelled 60 m in 4 seconds from rest, what would its velocity be?

$v = \frac{d}{t} = \frac{60\,m}{4\,s} = 15\,m/s$

Momentum

Momentum: - measure of an object's motion

- likelihood that the object will remain in motion

Force: any push or pull on an object
(depends on how long it is applied, the mass of the object, and the direction)

Newton's 1st Law of Motion

An object in motion will remain in motion, unless acted upon by a net force.

An object at rest will remain at rest, unless acted upon by a net force.

Momentum

momentum = mass x velocity [kg] [m/s]

p = m x v

Units are kgm/s $\left[kg\frac{m}{s}\right]$

Example

A 700 kg car is moving at 60 m/s. What is its momentum?

m = 700 kg

v = 60 m/s

p = ?

$p = m \times v$

$= 700\,kg \times 60\frac{m}{s}$

$= 42\,000\,kg\frac{m}{s}$

(p273) #1-3

- Ch 15 Vocab
- Sec 3 Assign Booklet