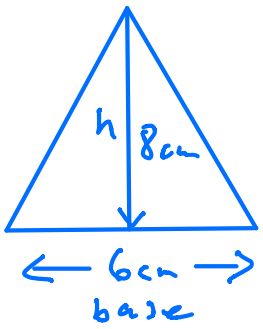
Hulk Review



$5.5\text{ cm} \leq \text{base} < 6.5\text{ cm}$

$7.5\text{cm} \leq \text{height} < 8.5\text{cm}$

Upper bound for area

$= \frac{1}{2}$ base $\times$ height

$= \frac{1}{2} \times 6.5 \times 8.5 = 27.625\text{ cm}^2$

27.6 cm^2

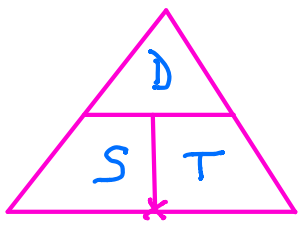
Lower bound for area

$= \frac{1}{2} \times 5.5 \times 7.5 = 20.625\text{ cm}^2$

20.6 cm^2

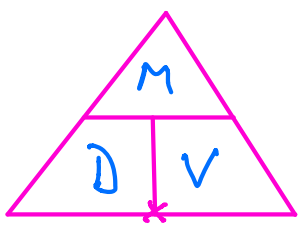
Compound Measures.

Speed, Time and Distance



$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

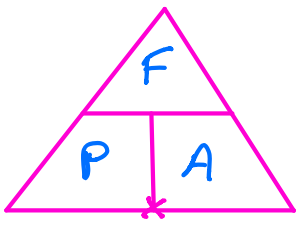
Density, Mass and Volume



$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

Pressure, Area and Force

$$\text{Pressure} = \frac{\text{Force}}{\text{Area}}$$



Speed, Time, Distance

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}, \quad \text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$\text{Distance} = \text{Speed} \times \text{Time}$$

Example

I drive 40 km from A to B in 2 hours. I then drive from B to C a distance of 80 km in 5 hours. I then drive from C to D for 3 hours at 25 km per hr.

What is my average speed for whole journey?

$$\text{Average Speed} = \frac{\text{Total Distance}}{\text{Total Time}}$$

	Speed	time	distance
A → B		2	40
B → C		5	80
C → D	25	3	75
Total		10	195

$$\text{Avge Speed} = \frac{\text{Total Dist}}{\text{Total time}} = \frac{195}{10}$$

$$= 19.5 \text{ Km per hr}$$

Ex 2 E to F 3 hrs at 20 Kmph

F to G 60 Km in 4 hrs

G to H 100 km in 5 hrs

Find average speed

	speed	time	distance
E → F	20	3	60
F → G		4	60
G → H		5	100
Total		12	220

$$\text{Avge speed} = \frac{220}{12} = 18.3 \text{ Kmph}$$

Exercise

A → B 20 Kmph for 5 hours

B → C 100 Km in 4 hours

C → D 80 Km at 40 Kmph

Find average speed

	speed	time	distance
A → B	20	5	100
B → C		4	100
C → D	40	2	80
	Totals	11	280

$$\text{Avge Speed} = \frac{280}{11} = 25.5 \text{ Kmph}$$

Density, Mass, Volume

$$\text{Density} = \frac{\text{Mass}}{\text{Vol}} \qquad \text{Mass} = \text{Vol} \times \text{Density}$$

$$\text{Vol} = \frac{\text{Mass}}{\text{Density}}$$

Example

I mix 30g of substance A with density $5\ g/cm^3$

with 80g of substance B wit density $10\ g/cm^3$

What is the density of my mixed compound

	Density	Vol	Mass
A	$5\ g/cm^3$	$6\ cm^3$	30g
B	$10g/cm^3$	$8\ cm^3$	80g
Compound	tot	$14\ cm^3$	110g

$$\text{Compound density} = \frac{\text{Total Mass}}{\text{Total Volume}} = \frac{110}{14} = 7.86\ g/cm^3$$

Ex2 A mass 50g density $5\ g/cm^3$

B mass 100g vol $25\ cm^3$

C vol $80cm^3$ density $10\ g/cm^3$

Mix together and find density of compound

	density	vol	mass
A	$5\ g/cm^3$	$10\ cm^3$	50g
B		$25\ cm^3$	100g
C	$10g/cm^3$	$80\ cm^3$	800g
Totals		$115cm^3$	950g

$$\text{Density} = \frac{\text{Total Mass}}{\text{Total Vol}} = \frac{950}{115} = 8.26\ \text{g/cm}^3$$