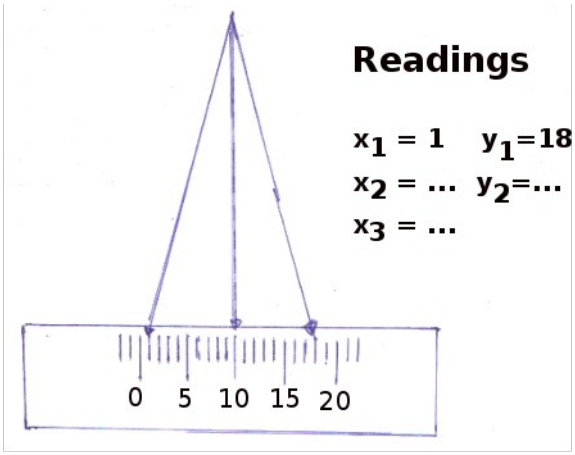
The Common Balance

AIM: To determine the mass of a body by using sensibility method of weighing

PRINCIPLE:

Sensibility (S) of the balance is the mass required to shift the resting point by one division of the scale

Sensibility of the balance = $\frac{10\,mg}{(R_0 - R_1)\,divisions}$



S = $\frac{0.01}{(R_0 - R_1)}\,gm/division$

where **(R_0 -R_1)** is the change in Resting Point when 10 mg is inserted in the right pan

Then the correct weight of the body = **W + S (R -R_0) gm**

Where W is the mass of the body inserted in the left pan of the balance

OBSERVATIONS:

Load in Pans		Turning Points		Mean Turning Points		Resting Point $\frac{X+Y}{2}$
Left	Right	Left	Right	Left	Right	
Nil	Nil	X_1= X_2= X_3=	Y_1= Y_2=	X =	Y=	R_0 =
Nil	10 mg	X_1= X_2= X_3=	Y_1= Y_2=	X =	Y=	R_1 =
Given Body	W= gm	X_1= X_2= X_3=	Y_1= Y_2=	X =	Y=	R =

CALCULATIONS:

Sensibility of the balance = $\frac{0.01}{(R_0 - R_1)}$ = = $gm/division$

Correct Mass of the body = W + S(R -R_0) =

= gm = kg

RESULT:

Mass of the body = kg