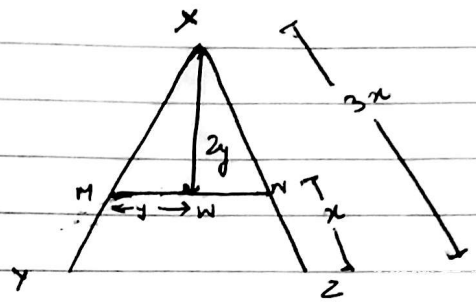
Documentation for A-formation

→ Depending on the no. of bots provided, the size of 'A' can be changed, and can be done in the best possible way.

Assumptions :- (based on calculation)



Consider the 'A' shown above.

As a general 'A',

$$XW : WM \approx 2 : 1$$

$$\therefore \tan^{-1}\left(\frac{NW}{WX}\right) \approx 26°.$$

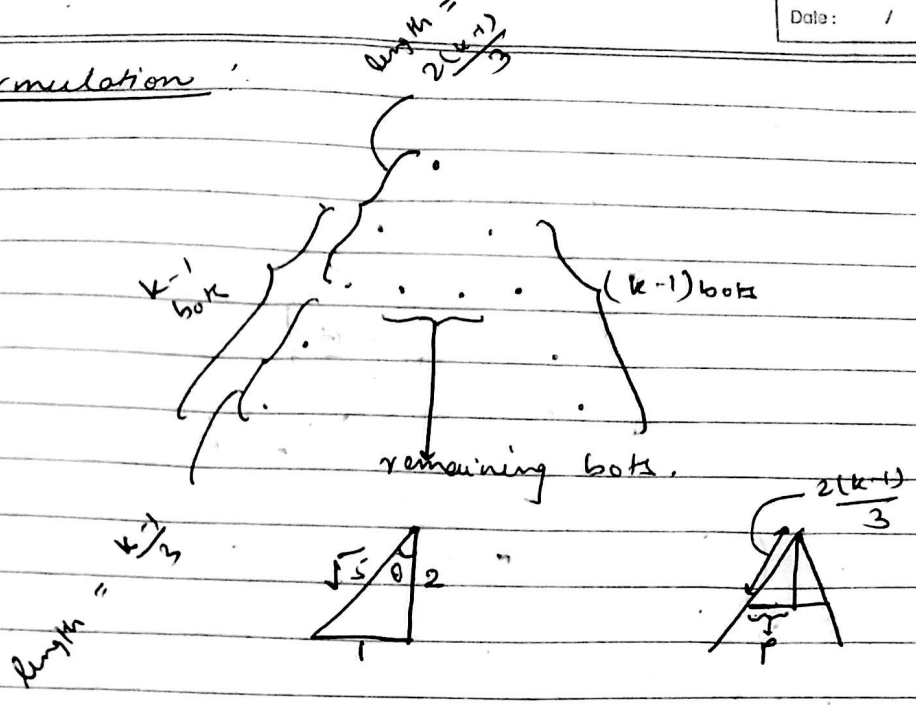
$$\text{So, } \angle YXZ \approx 52° \ (\approx 50°)$$

↓ general angle for A.

Also, $XZ : WZ = 3 : 1$, i.e. the ~~inner base~~ line height is $1/3^{rd}$ of the total height of 'A'.

Now let us consider there are k bots on left & right arms of A (including top bot too).

Formulation :



$$\sin\theta = \frac{1}{\sqrt{5}} = \frac{P}{2\frac{(k-1)}{3}}$$

$$\Rightarrow \quad P = \frac{2(k-1)}{3\sqrt{5}}$$

$$\text{So, } \quad 2P = \frac{4}{3\sqrt{5}}(k-1) \approx 0.6(k-1)$$

So, no of bolts present in between the two arms of A = $0.6(k-1)$

So, total no of bolts(n) = $(k-1) + 1 + (k-1) + 0.6(k-1)$

$$\Rightarrow \quad 2.6k - 1.6 = n$$

$$\Rightarrow \quad \boxed{k = \frac{n+1.6}{2.6}}$$

So, after getting 'k', we can easily calculate the co-ordinates each of every bolt.