Important Points to be remembered in Projection of Points and Line

Summary of Projection of Points

1. If Point is **above HP** and **infront of VP** then point is in **first quadrant**
2. If point is **in HP** and **infront of VP** point is in **First or Fourth Quadrant**
3. If Point is **above HP** and **on VP** then point is **First or Second Qudarant**
4. If Point is **behind VP** and **above HP** then Point is in Second Quadrant
5. If Point is **behind VP** and **on HP** then Point is **Second or Third Quadrant**
6. If the point is **on VP** and **below HP** then Point is **in Third or Fourth Quadrant**
7. If the point **Behind VP** and **on HP** then Point is in the **Third or Second Quadrant**
8. If the point is **infront of VP** and **below HP** then Point is in **Forth Quadrant**

9. If the point is **on HP** then **Front view of the point is on XY line**
10. If the Point is **on VP** then **Top view of the point is on XY line**
11. If the point is **on HP and on VP** Front view and top view on XY line and **Point is on all Quadrants**
12. In the problem it is mentioned the point is
    - i) Point is **BIHIND VP** , then **TOP VIEW** is at **BELOW** XY line (ie HP is at below XY line)
    - ii) Point is **INFRONT** of VP , then **TOP VIEW** is at **ABOVE** XY line (ie HP is at above XY line)
    - iii) Point is **ABOVE HP** , then **FRONT VIEW** is at **ABOVE** XY line (ie VP is at above XY line)
    - iv) Point is **BELOW HP** , then **FRONT VIEW** is at **BELOW** XY line (ie VP is at Below XY line)

Important Point in Projection of lines

1. Angle made by the **True length** of the line with XY line in the **Front view** (at VP) is the **True inclination** of the line with **HP**
2. Angle made by the **True length** of the line with XY line in **Top view** (at HP) is **True inclination** of the line with **VP**
3. Length of **Front view of the line** (a'b') when the line is **inclined to both HP and VP** is less than true length and angle made by reduced length (less than true length) with xy line in front view is **apparent angle with HP**
4. Length of **Top view of the line (ab)** when the line is **inclined to HP and VP** is less than true length and angle made by reduced length (less than truelength) with xy line in Top view is **apparent angle with VP**
5. Distance **from HP** should be measured **on VP in all Quadrants Problems**

6. Distance **from VP** should be **measured on HP in all Quadrants Problems**

Understanding of the sentence in the problem

i) Length of the line is 80mm/line measures 80 mm long means true length (actual length) of the line is 80mm

ii) Length of **top view /top view** measures 50 mm means **apparent length in in top view** is 50mm

iii) Length **of Front view /Front view** measures 50 mm means **apparent length in Front view** is 50mm

iv) **Line is** inclined at 30 degree to **HP** means **True inclination of line with HP** is 30 Degree

v) **Line is inclined** at 30 degree to **VP** means **True inclination of line with VP** is 30 Degree

vi) **Front view** is inclined at 30 degree to xy line means **apparent angle in Front** view (ex angle made by a'b' /p'q' with xy line)

vii) **Top view** is inclined at 30 degree to xy line means **apparent angle in Top view** (ex angle made by ab /pq with xy line)

When the line is parallel to HP and inclined to VP , I named it as AB_1/$PQ_1$and

- Front view is $a'b_1'/p'q_1'$, length of the Front view ($a'b_1'/p'q_1'$)= Actual length of the line
- Angle made by Front View ($a'b_1'/p'q_1'$) is **True inclination with HP**
- Top view is ab_1/pq_1 and reduced in length and parallel to xy line

When the line is parallel to HP and inclined to VP , I named it as AB_1/$PQ_1$and

- Top view is ab_1/pq_1 , length of the Top view (ab_1/pq_1)= Actual length of the line
- Angle made by Top View (ab_1/pq_1) is **True inclination with VP**
- Front view is $a'b_1'/p'q_1'$ and reduced in length and parallel to xy line

When the line is inclined both to HP and VP , I named it as AB/PQ and

- Top view is ab/pq , length of the Top view (ab_1/pq_1)= Reduced length (less than actual length) of the line
- Angle made by Top View (ab/pq) is Apparent inclination of line with VP
- Front view is a'b'/p'q' , length of the Front view (a'b'/p'q')= Reduced length (less than actual length) of the line
- Angle made by Front View (a'b'/p'q') is Apparent inclination of line with HP

Please note that:

While dimensioning

- Do not write mm , indicate only the number of measurement
- Dimensioning line should be parallel to the line to which you are dimensioning
- Extension line should be perpendicular to the line to which you are dimensioning and it should start from the end of the line to which you are dimensioning
- Arrow head of dimensioning line should just touch the extension line
- Gap between the line and dimensioning line should be atleast approximately 5mm