

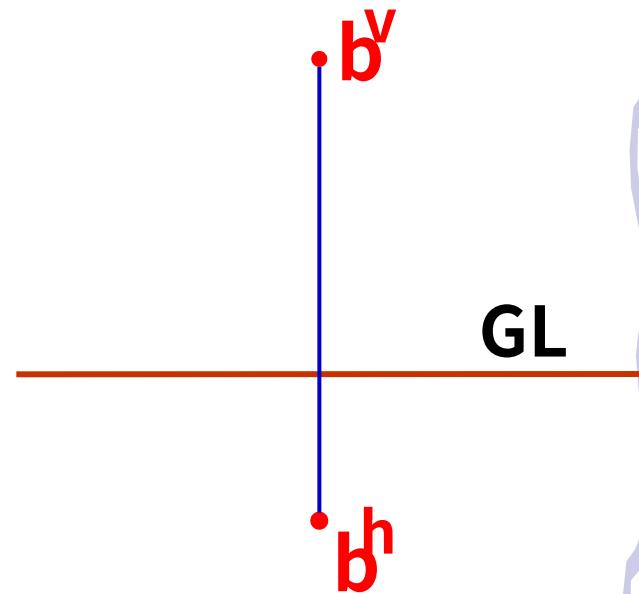
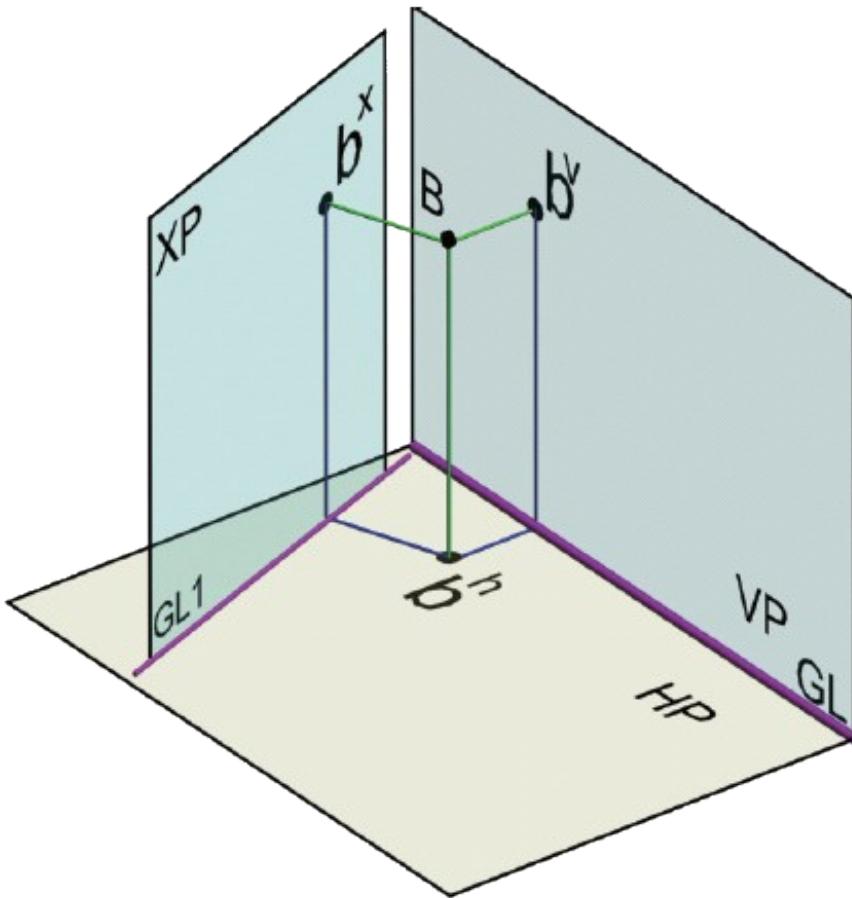
請用”放映(或按 F5)”模式觀看

第十一章 副投影

- 除了三個主要投影面之外，如有需要，亦可自行設立投影面，自行設立之投影面稱為副投影面或輔助投影面
- 副投影面非隨意設立，須與主要投影面之一垂直。

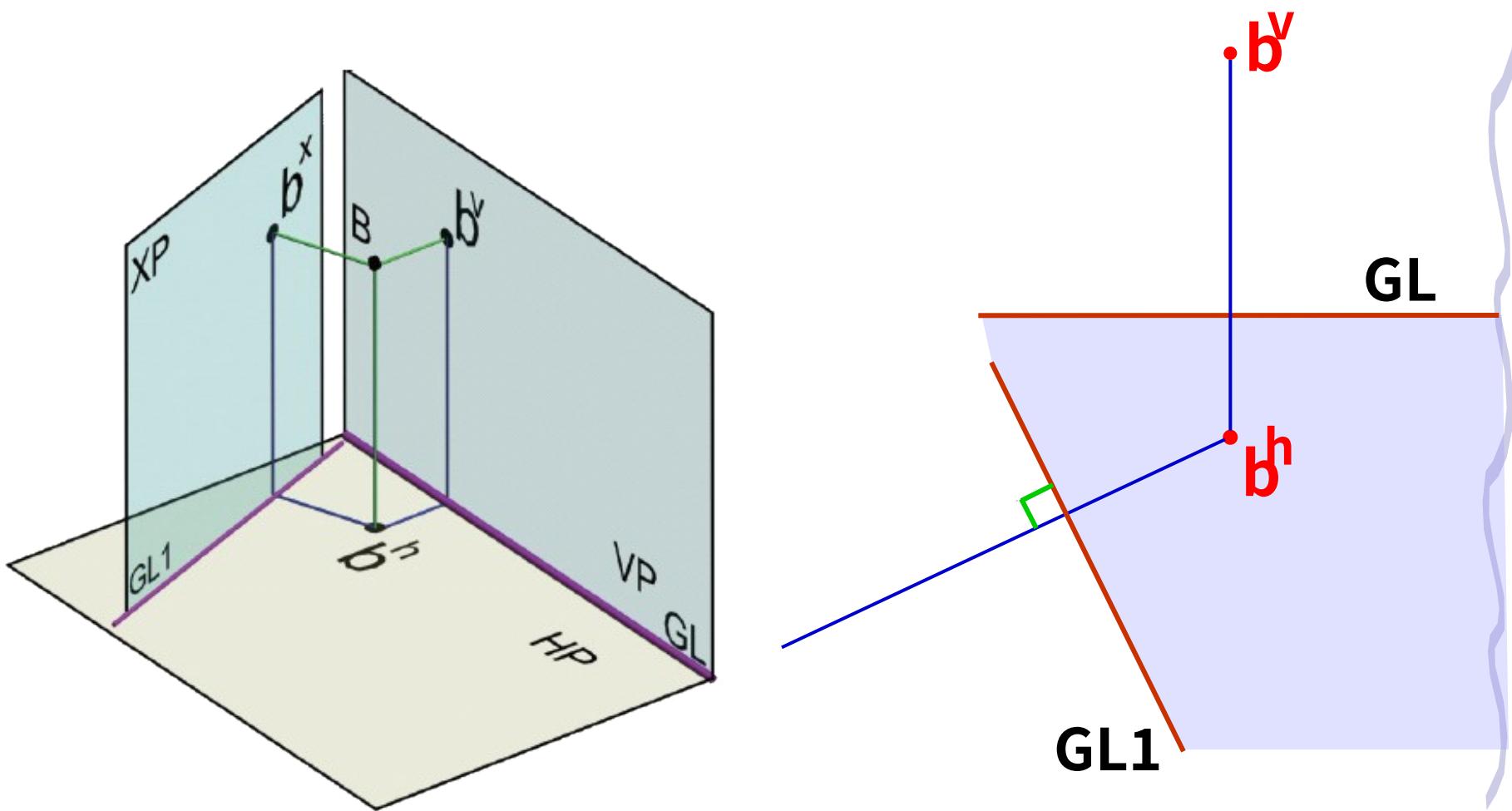
11.2 點之副投影 1/3

- 點的副投影繪製原理與正投影相同，投影線須與副投影面垂直。



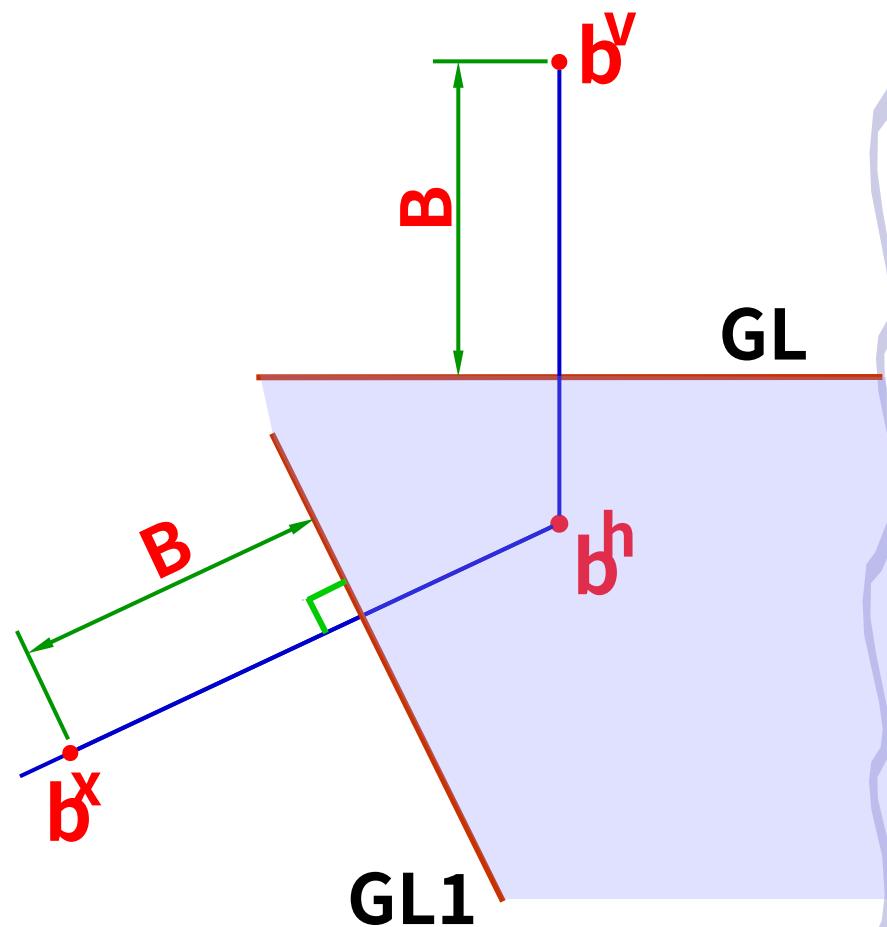
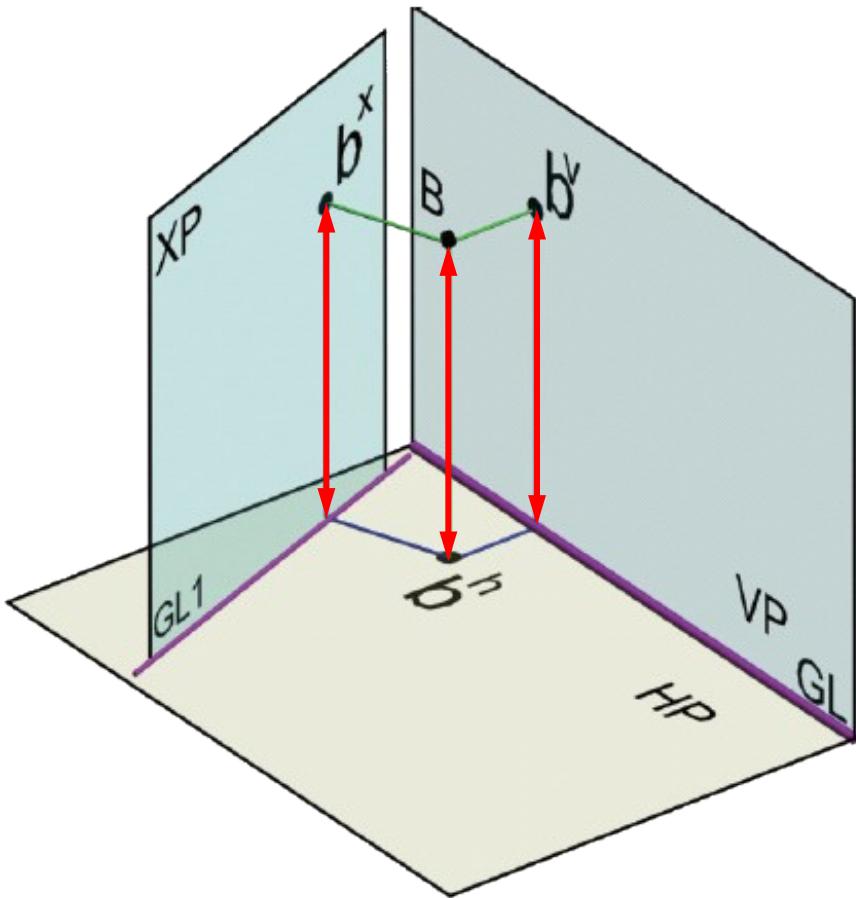
11.2 點之副投影 2/3

- 作第一副基線，過水平投影向 GL1 作垂線。



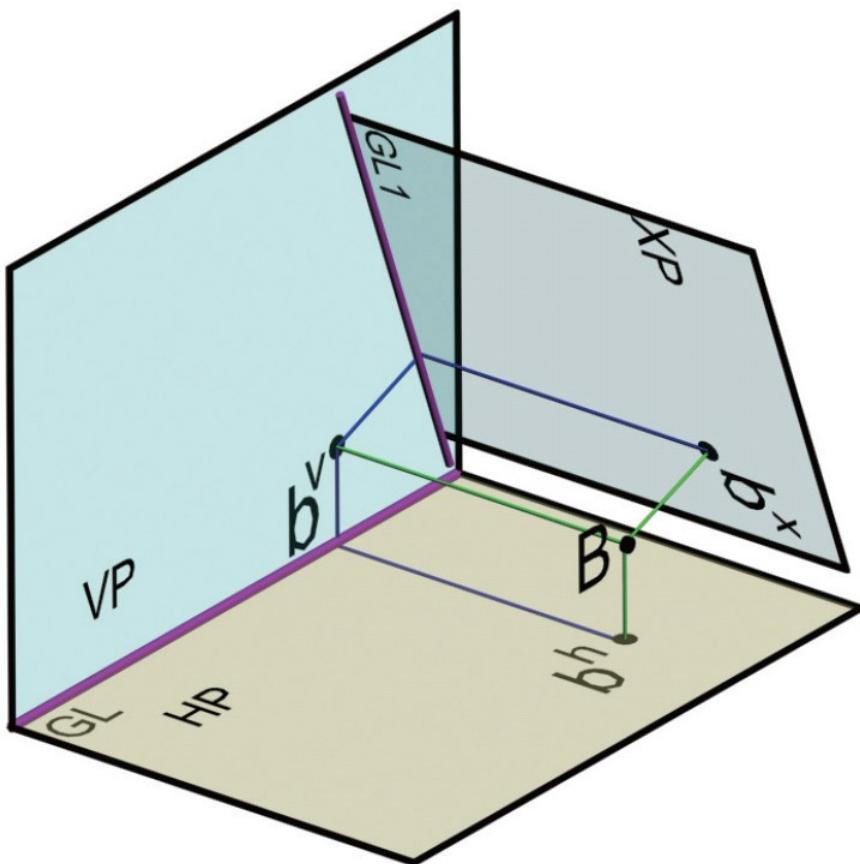
11.2 點之副投影 3/3

- 量取 b^v 與 GL 的距離等於 b^x 與 GL1 的距離，得點之副投影 b^x 。

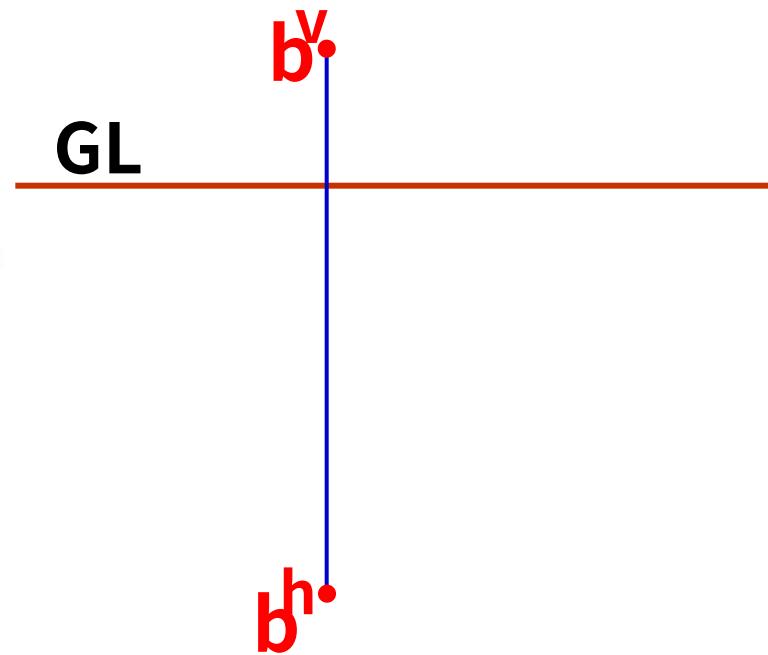


11.2 點之副投影 - 副投影與 V 面垂直 1/3

- 點的副投影繪製原理與正投影相同，投影線須與副投影面垂直。

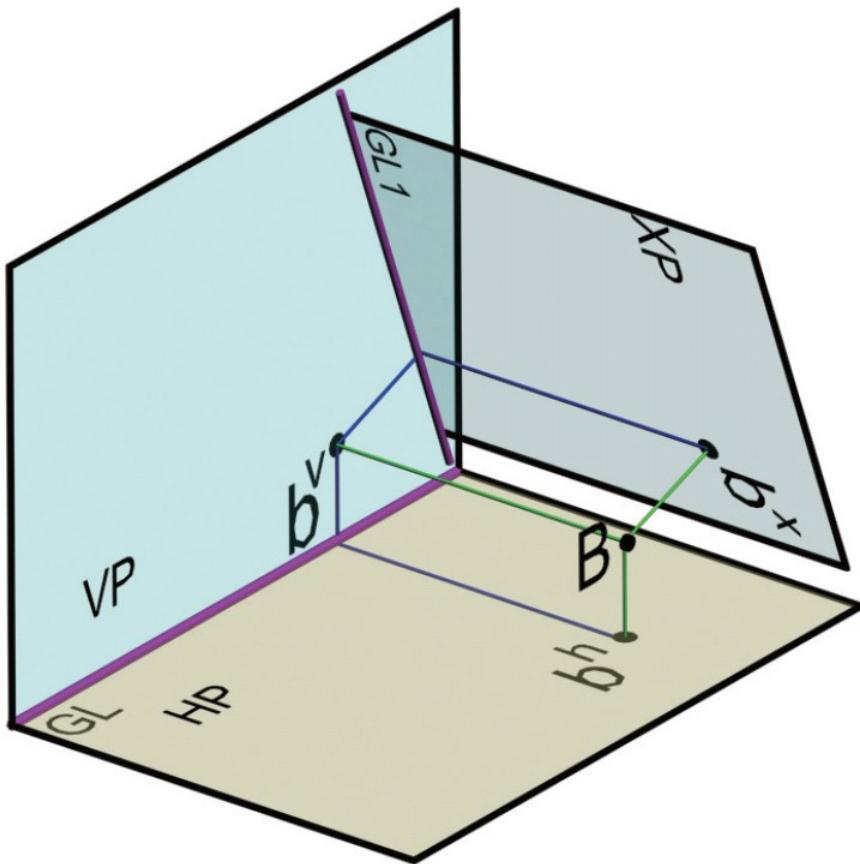


CAD圖 [CAD-AVI](#)

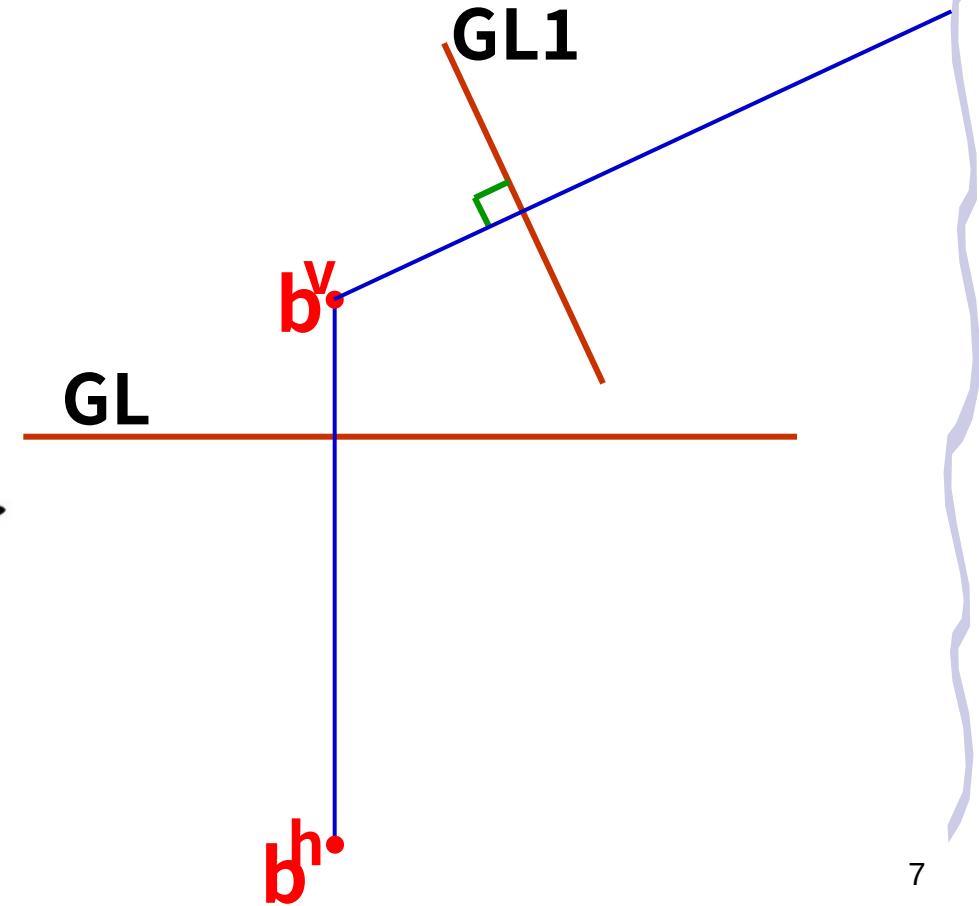


11.2 點之副投影 - 副投影與 V 面垂直 2/3

- 作第一副基線，過水平投影向 GL1 作垂線。

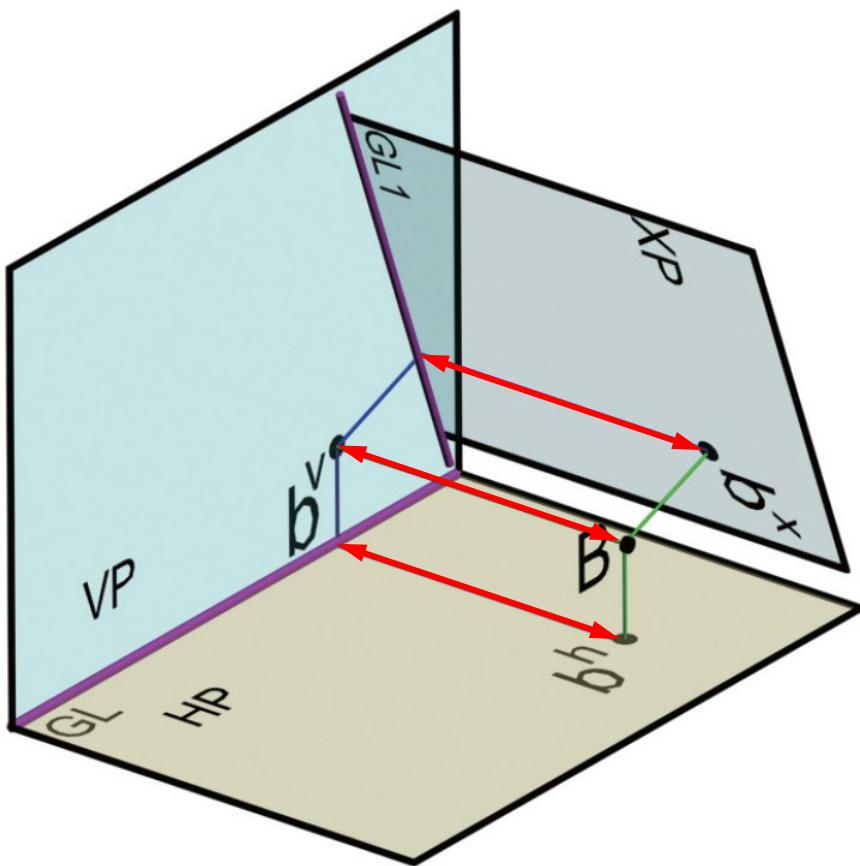


CAD圖 [CAD-AVI](#)

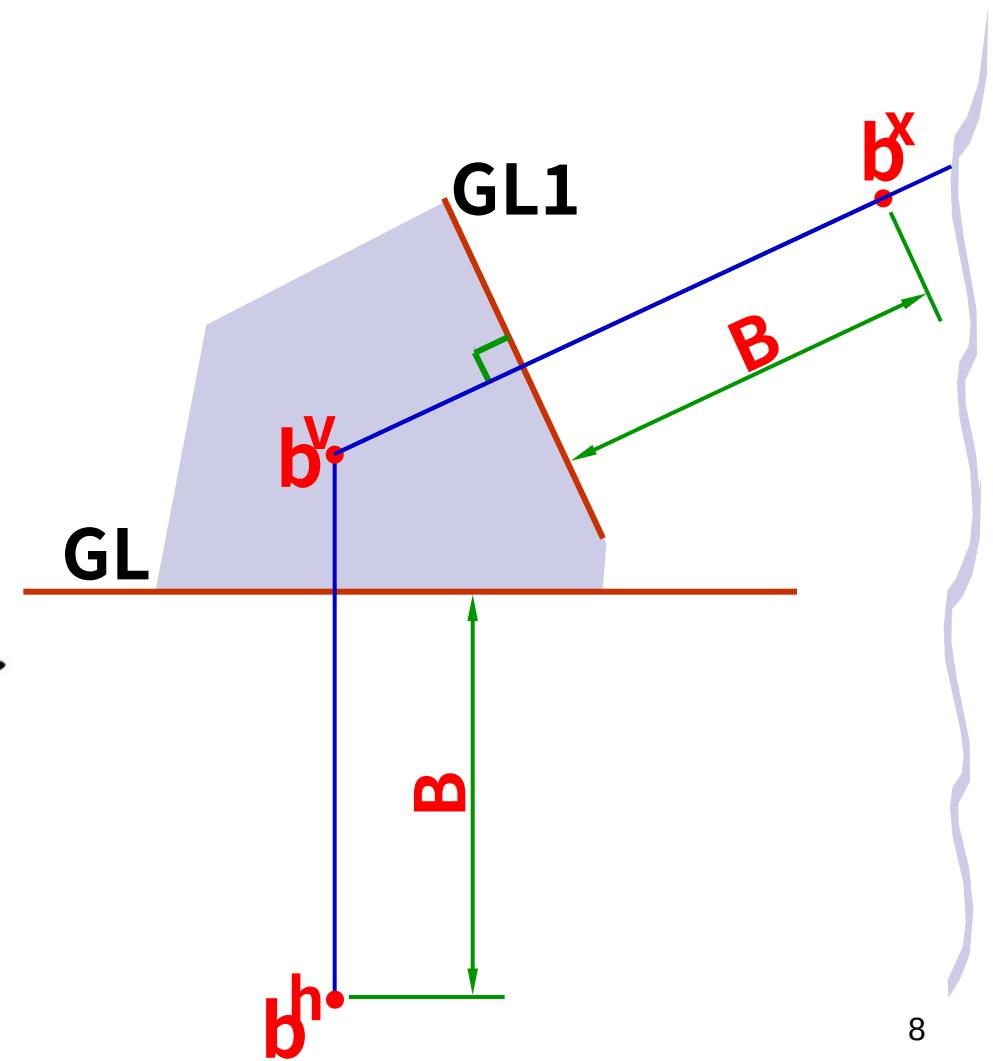


11.2 點之副投影 - 副投影與 V 面垂直 3/3

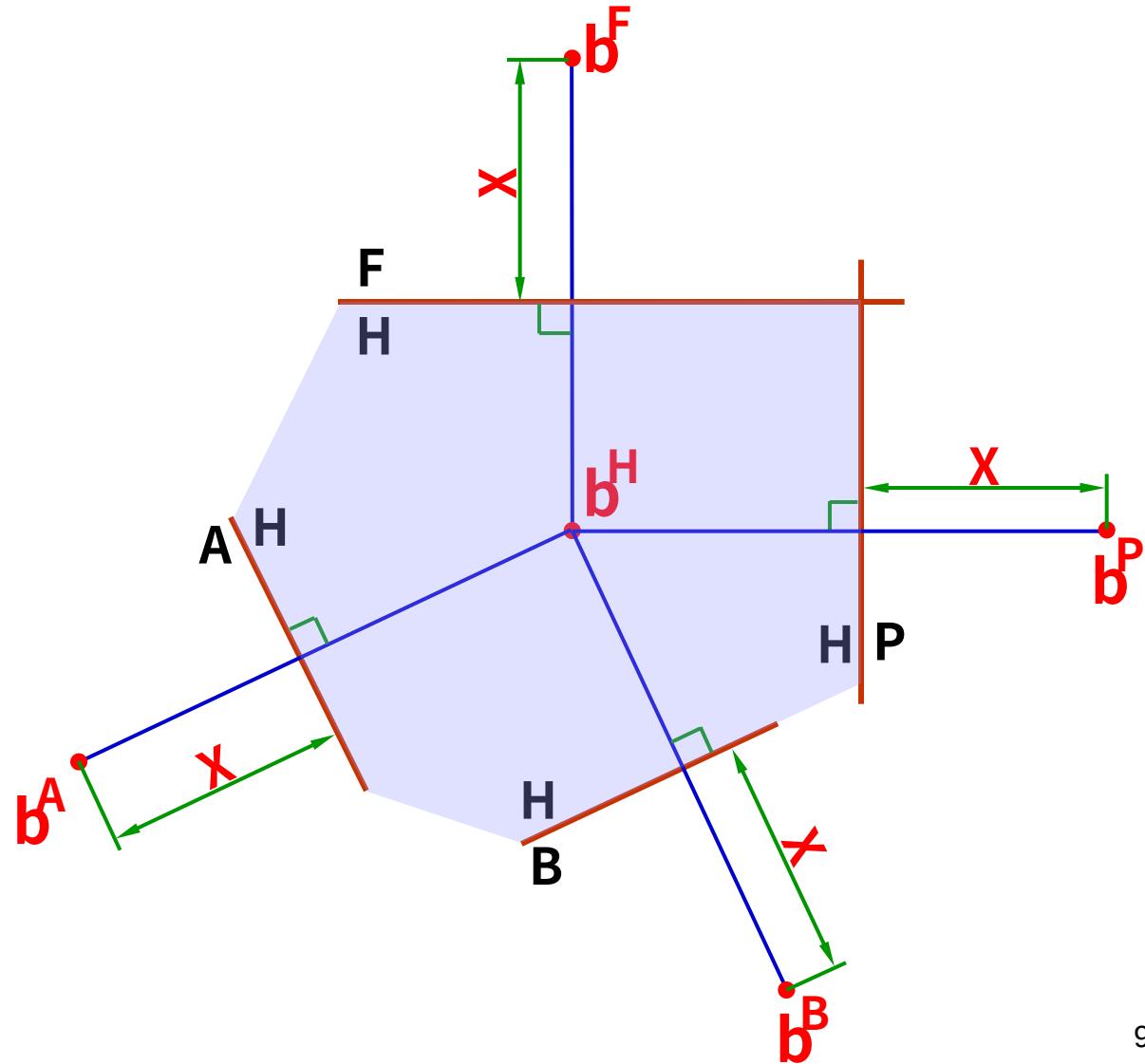
- 量取 b^h 與 GL 的距離等於 b^x 與 GL1 的距離，得點之副投影 b^x 。



CAD圖 [CAD-AVI](#)

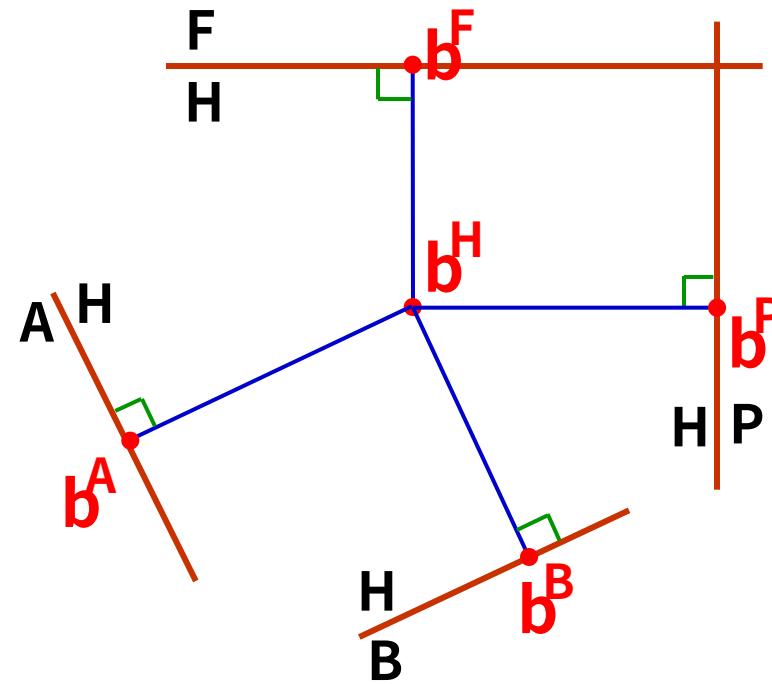


點之副投影觀念 1/3



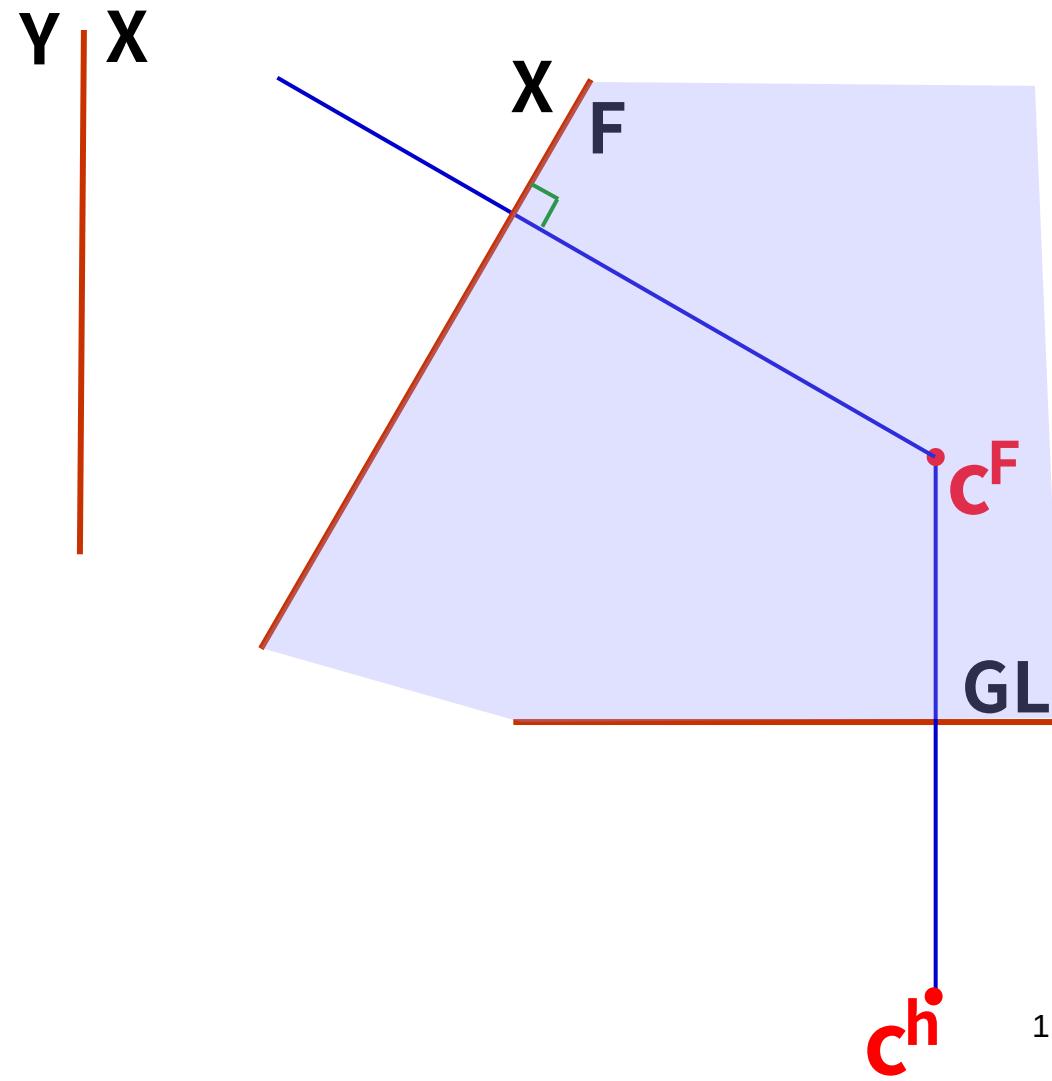
CAD圖

點之副投影觀念 2/3

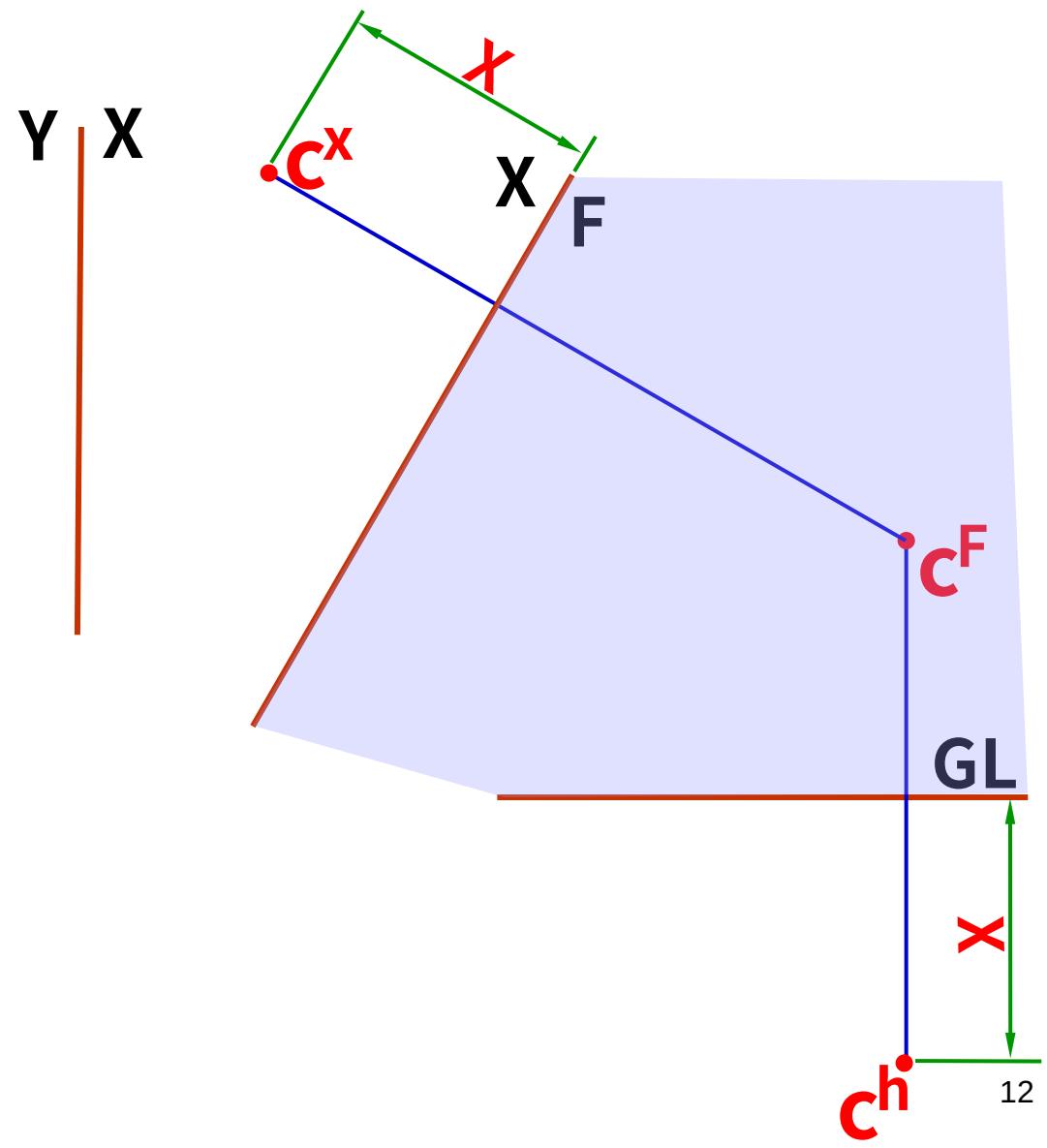


CAD圖

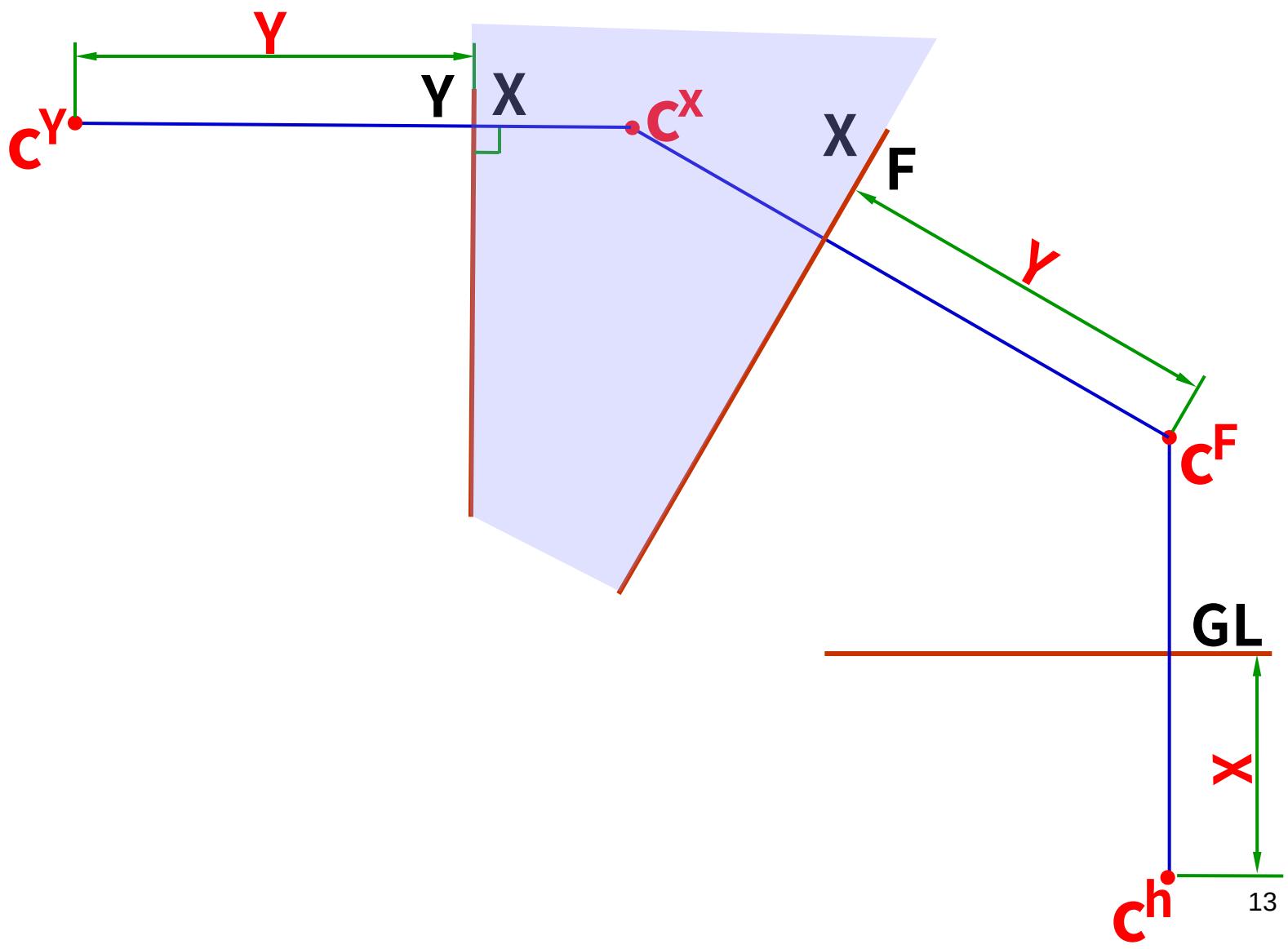
第二副投影 -1/3



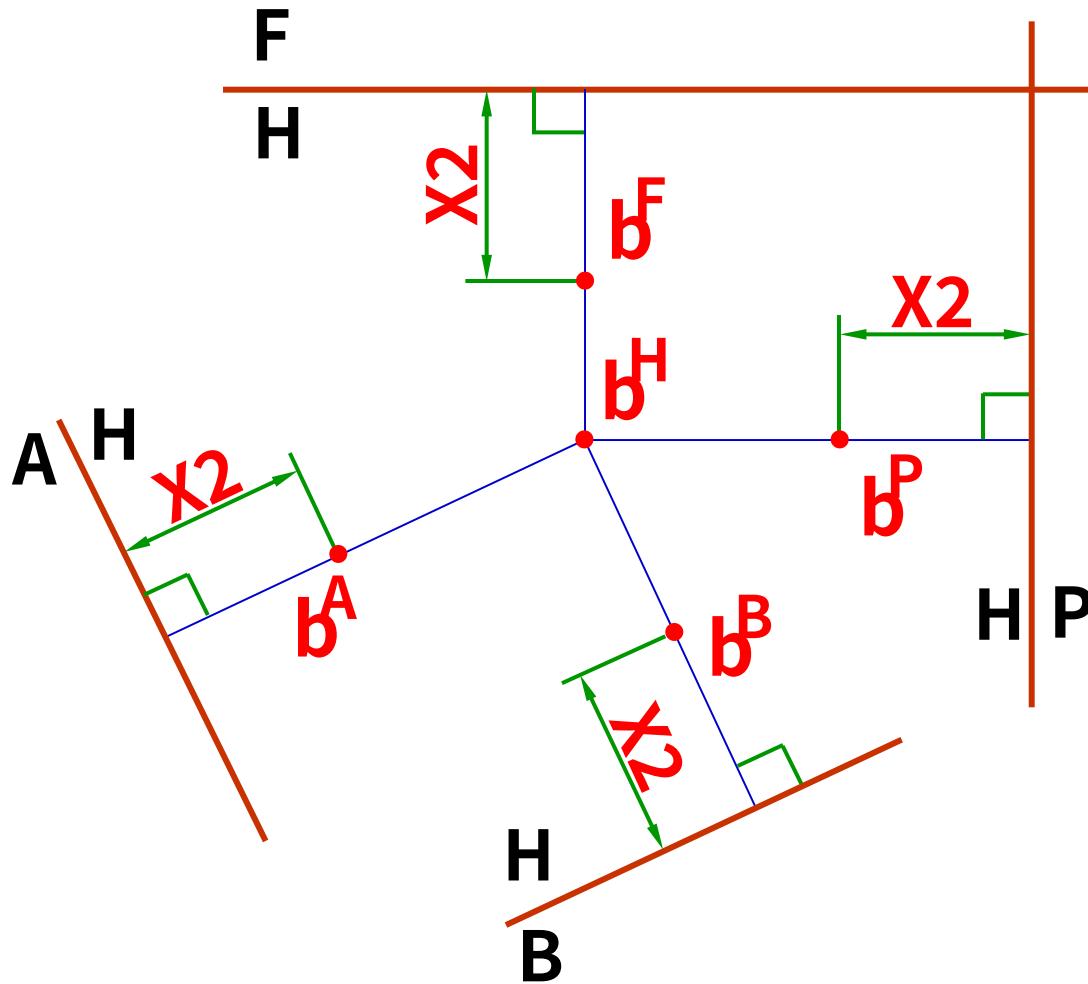
第二副投影 - 2/3



第二副投影 - 3/3



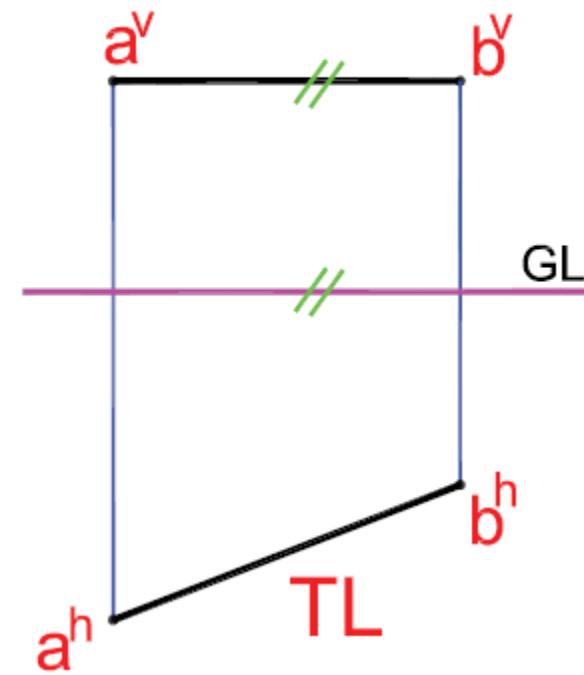
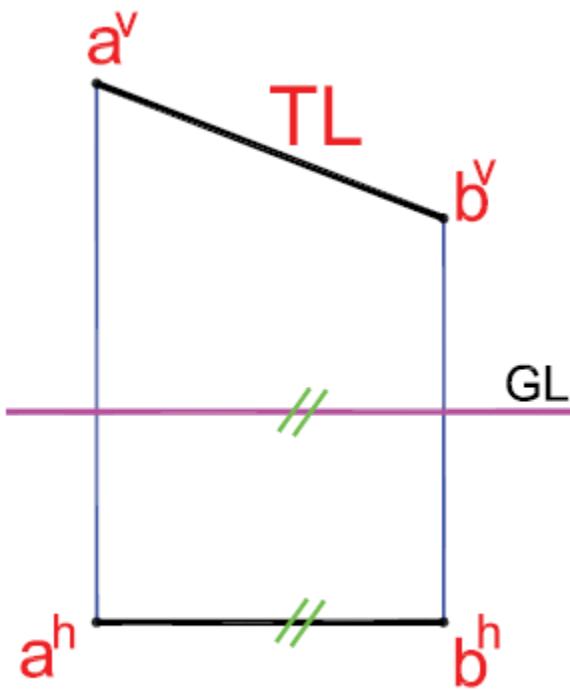
點之副投影觀念 3/3



CAD圖

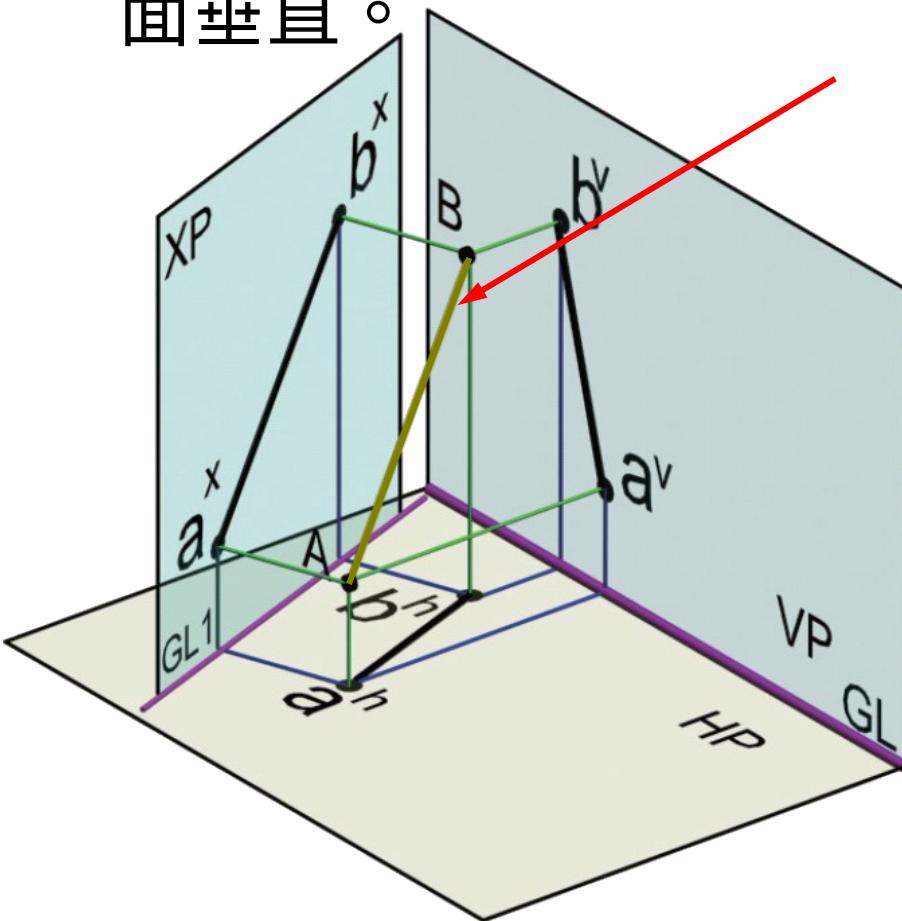
直線平行投影面之特徵

■ 投影與基線 GL 平行

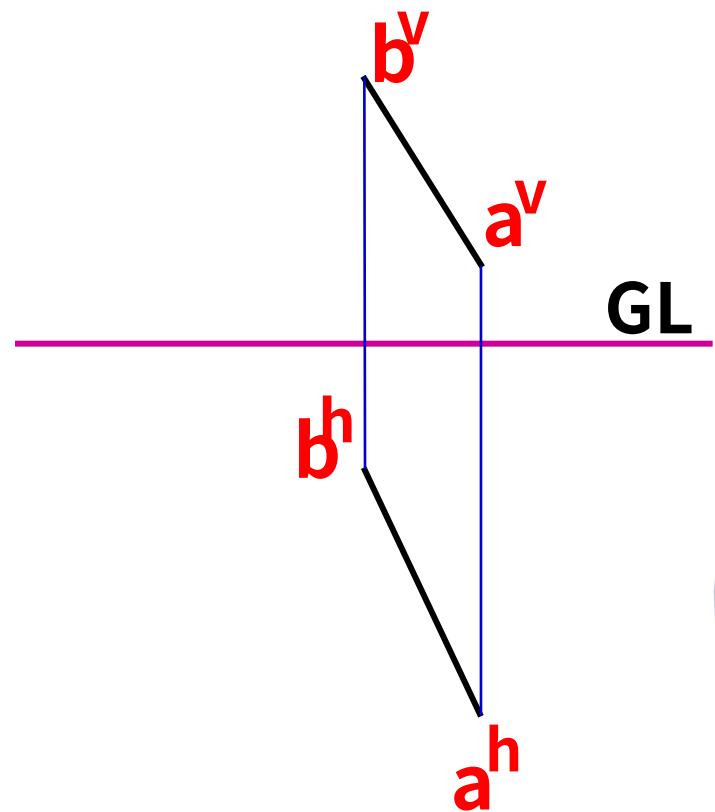


副投影法求直線之實長 1/6

- 圖 11.3 副投影面法求直線之實長—副投影面與 H 面垂直。

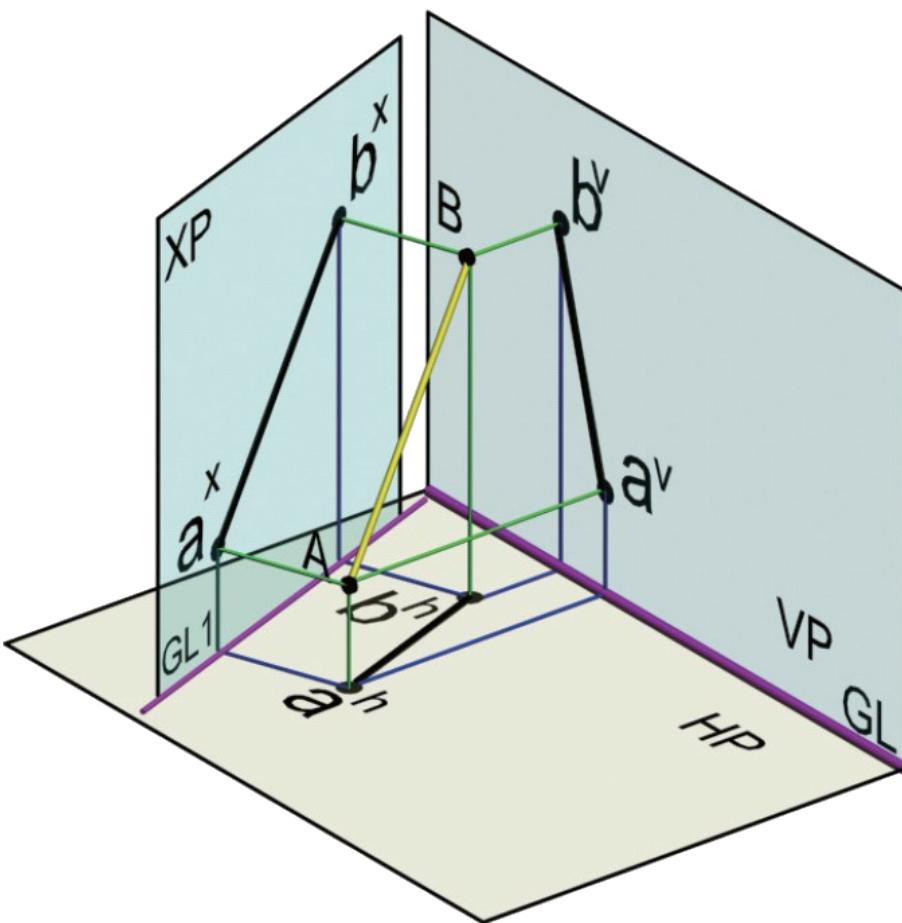


CAD圖 [CAD-AVI](#)

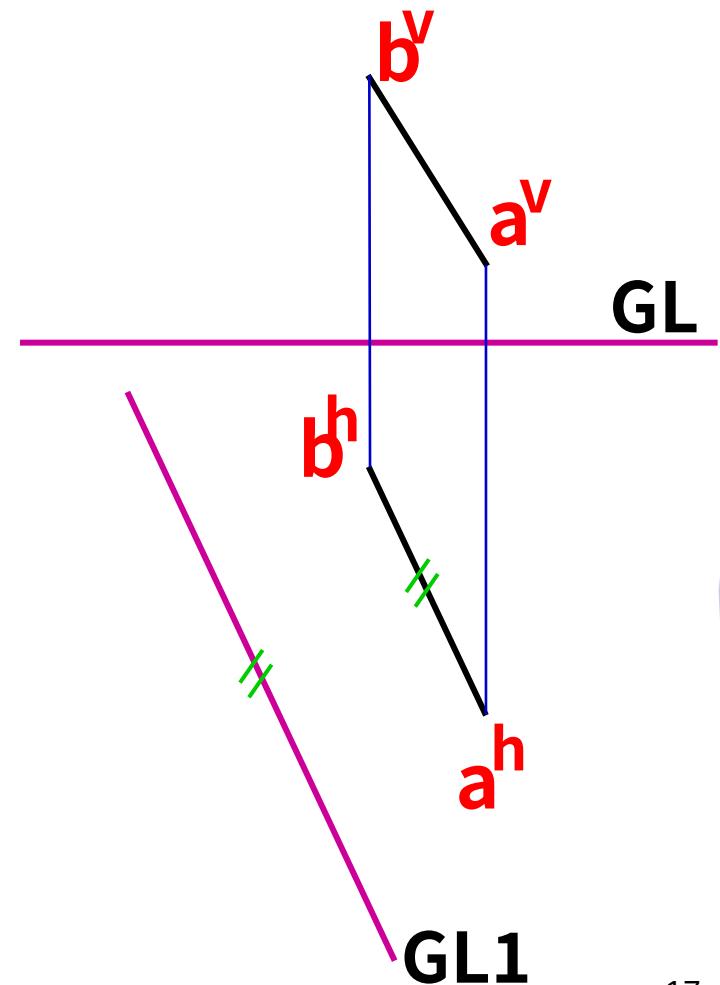


副投影法求直線之實長 2/6

- 取適當之距離作副基線 GL_1 與 $a^h b^h$ 平行

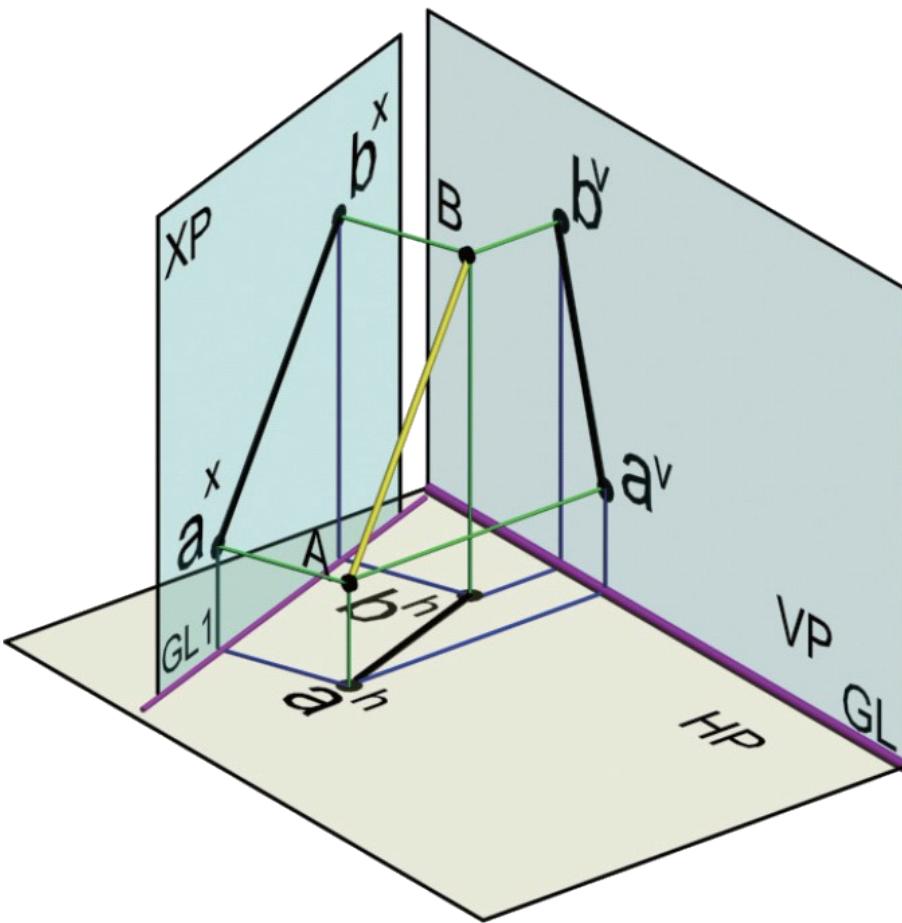


CAD圖 [CAD-AVI](#)

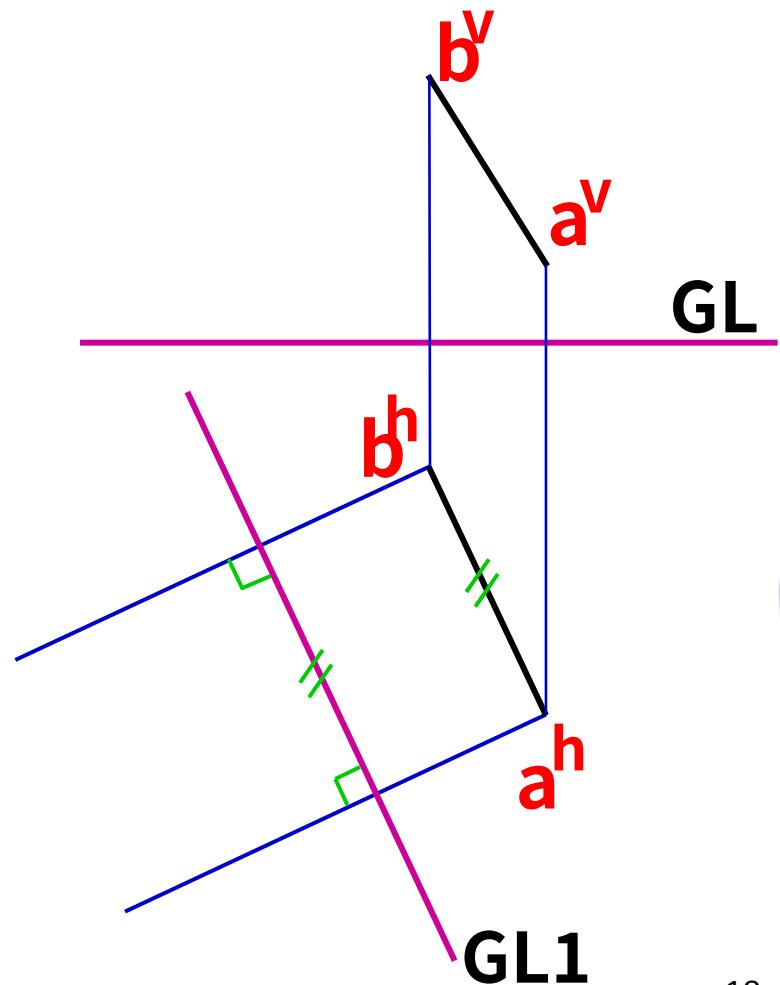


副投影法求直線之實長 3/6

- 過 $a^h b^h$ 作投影線垂直於副基線 GL1

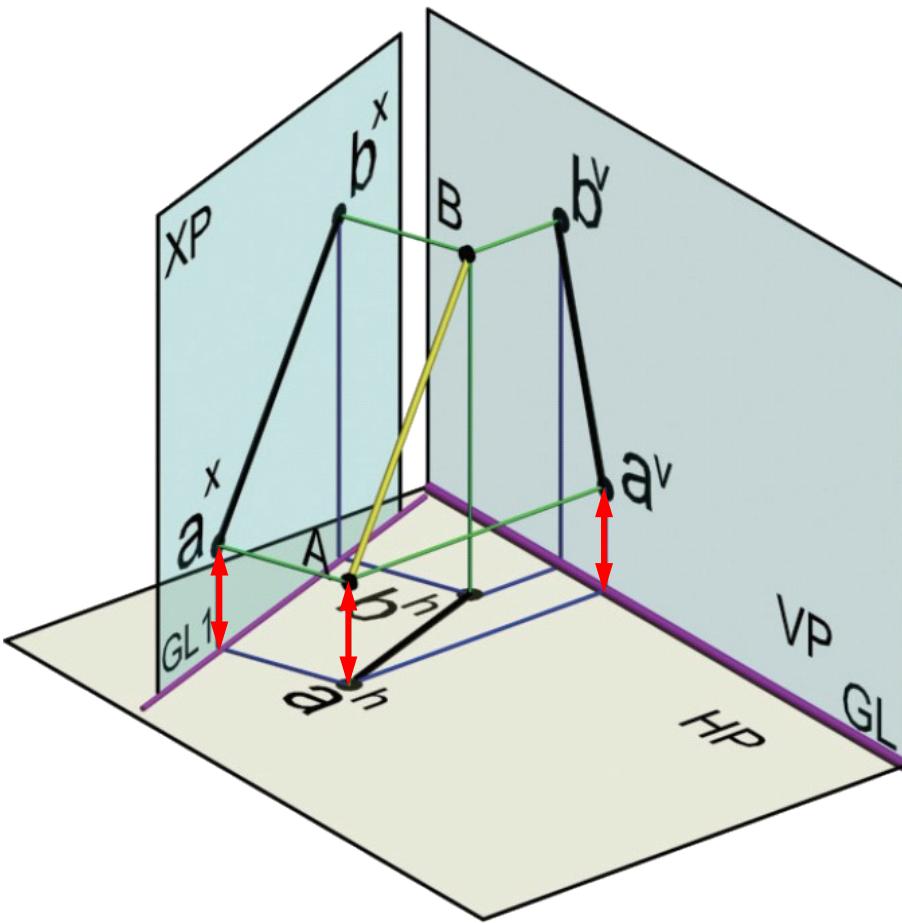


CAD圖 [CAD-AVI](#)

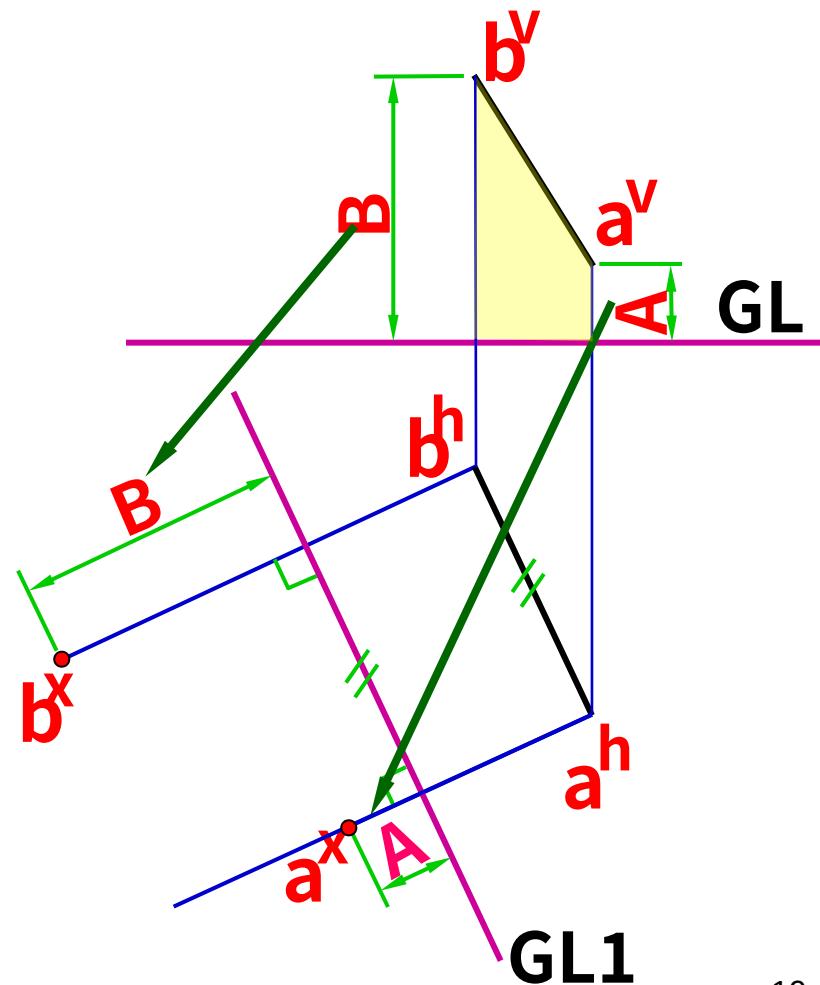


副投影法求直線之實長 4/6

- 分別作 A，B 兩點之副投影，得 a^x 與 b^x

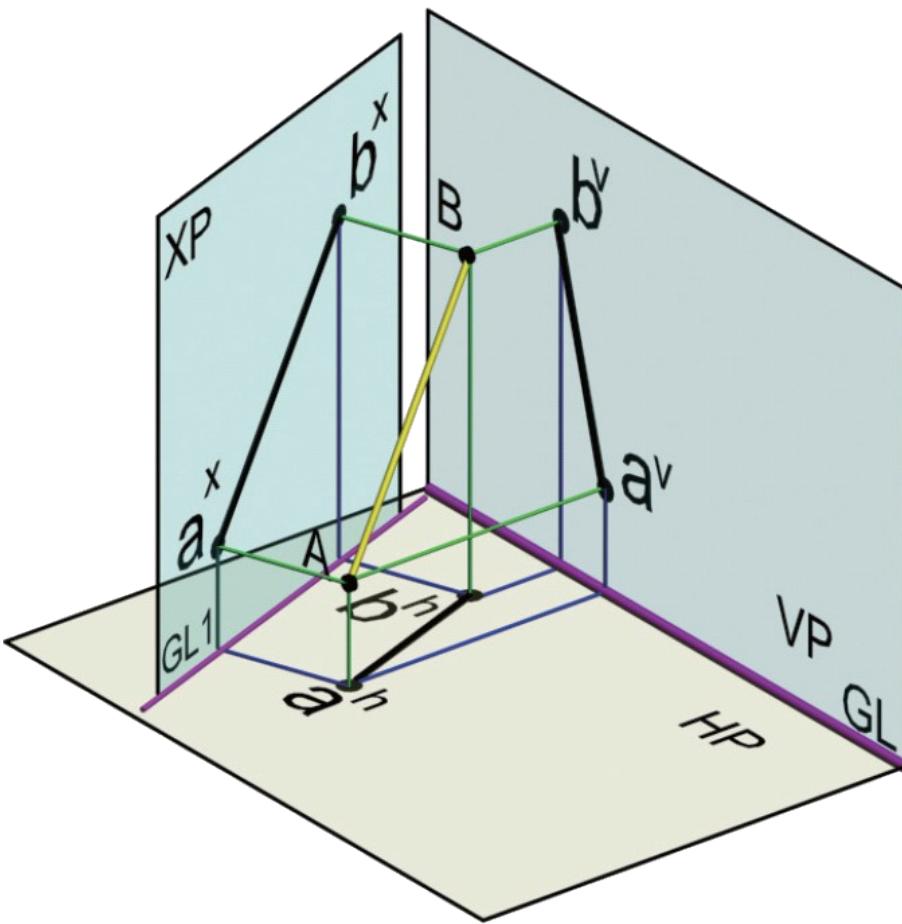


CAD圖 [CAD-AVI](#)

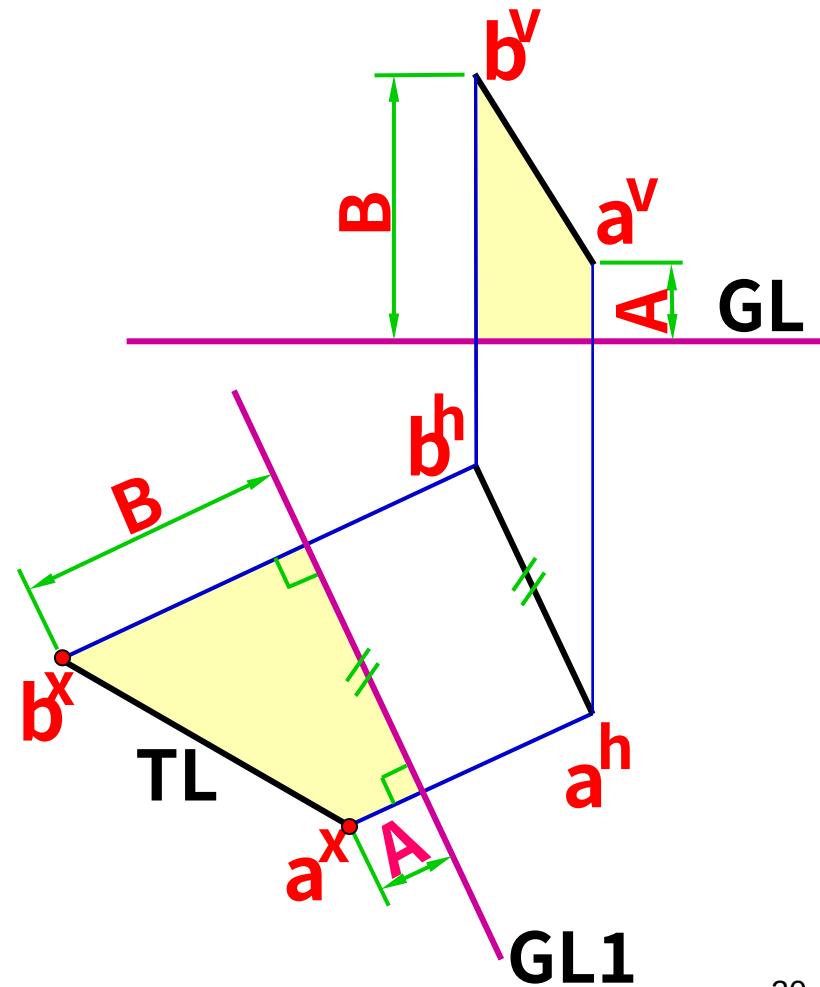


副投影法求直線之實長 5/6

- 連接 a^x 與 b^x 即為 AB 之副投影。

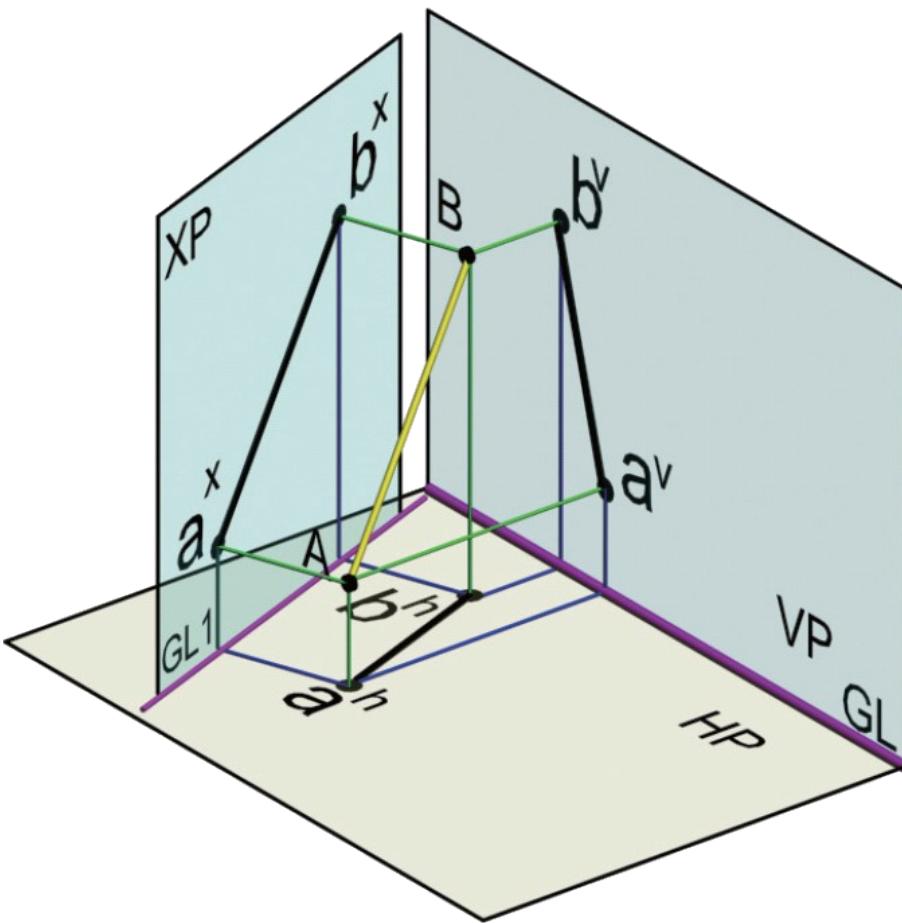


CAD圖 [CAD-AVI](#)

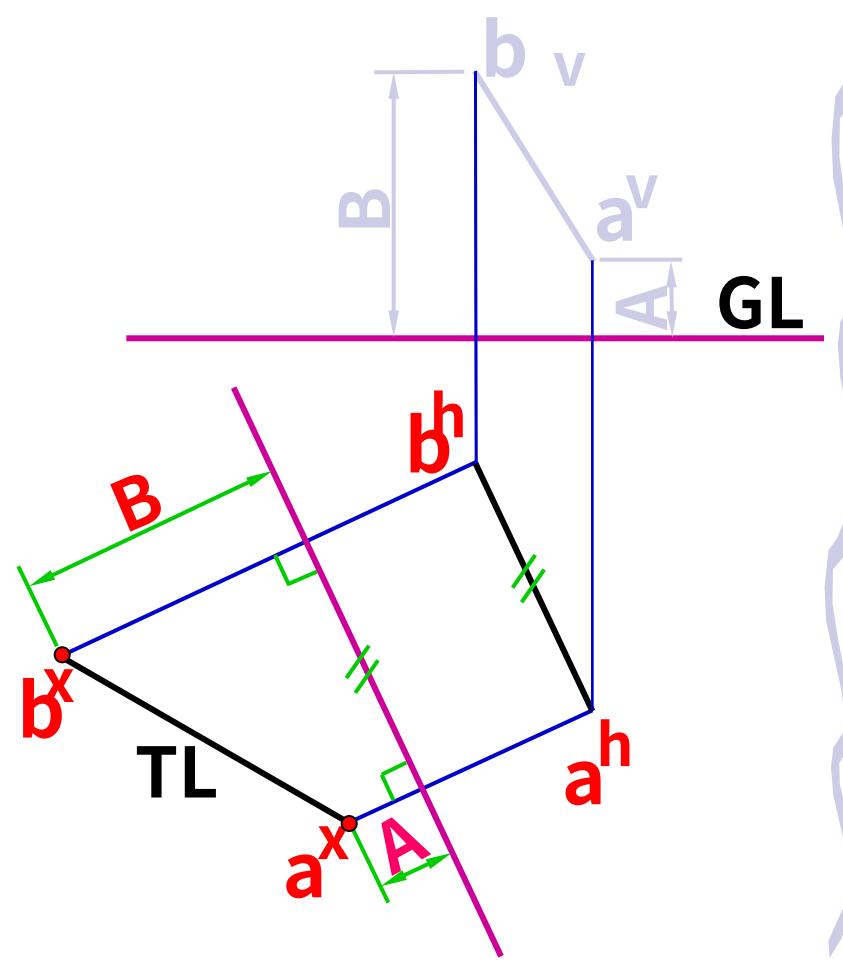


副投影法求直線之實長 6/6

- 直線與投影面平行之性質。

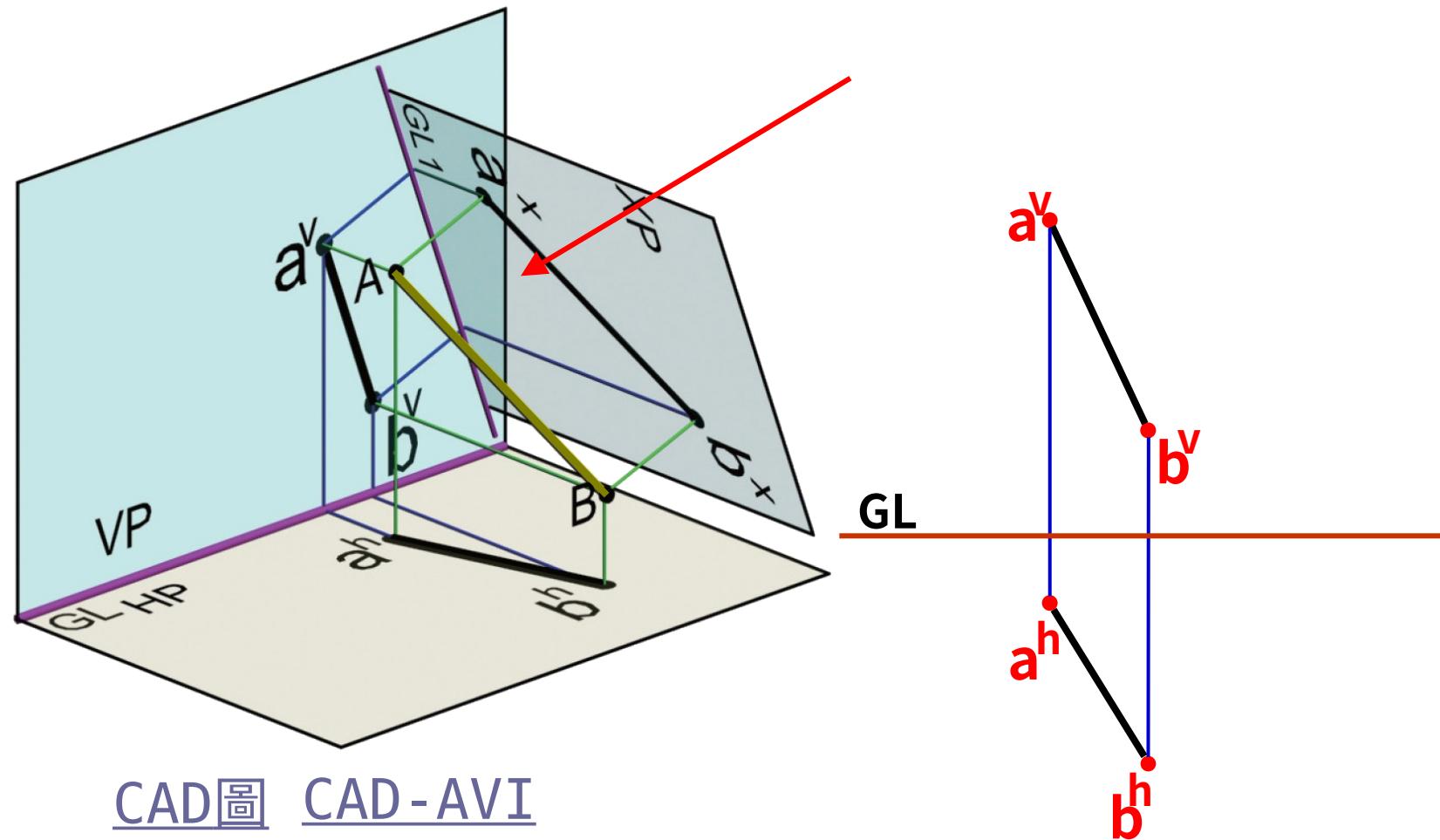


CAD圖 CAD-AVI



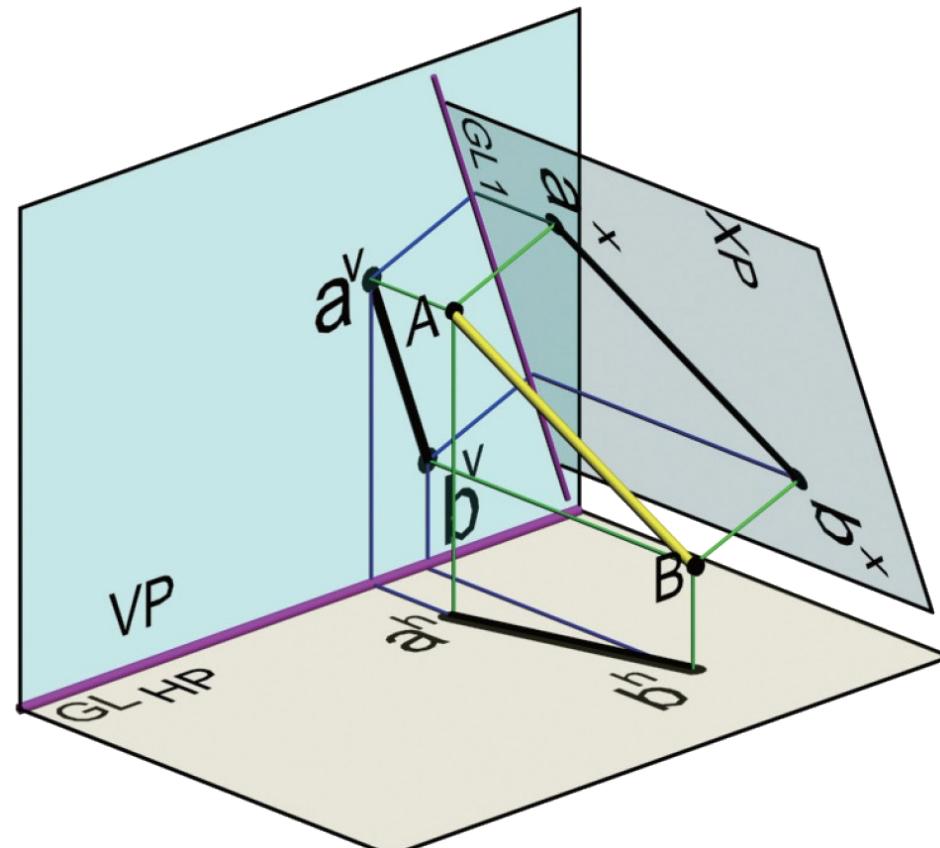
11.3 直線之副投影 1/5

- 副投影面法求直線之實長—副投影面與 V 面垂直

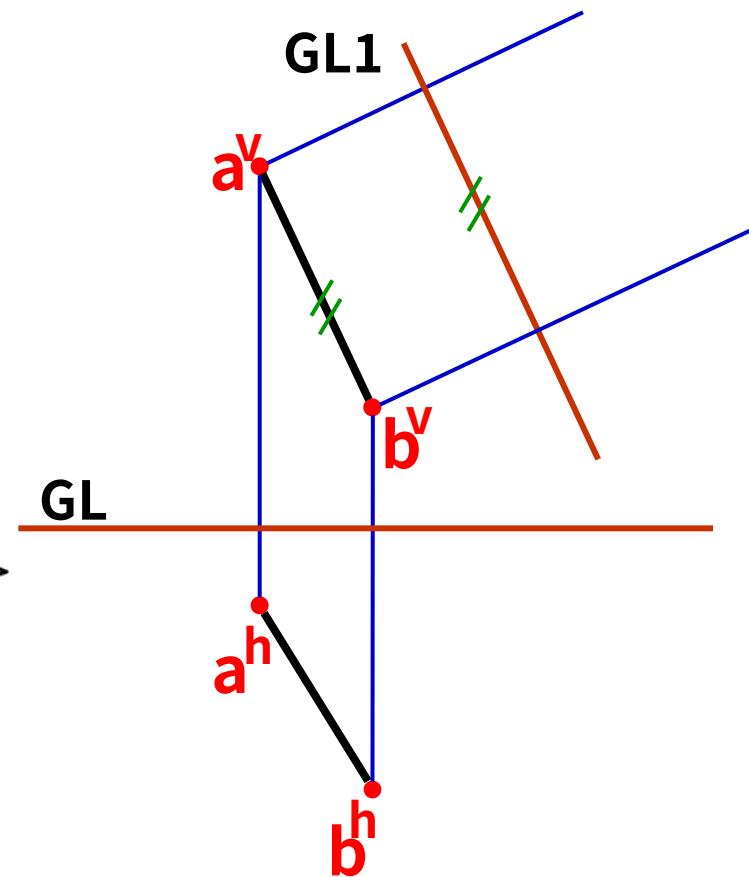


11.3 直線之副投影 2/5

- 取適當之距離作副基線 GL_1 與 $a^v b^v$ 平行，過 $a^v b^v$ 作投影線垂直於副基線 GL_1 。

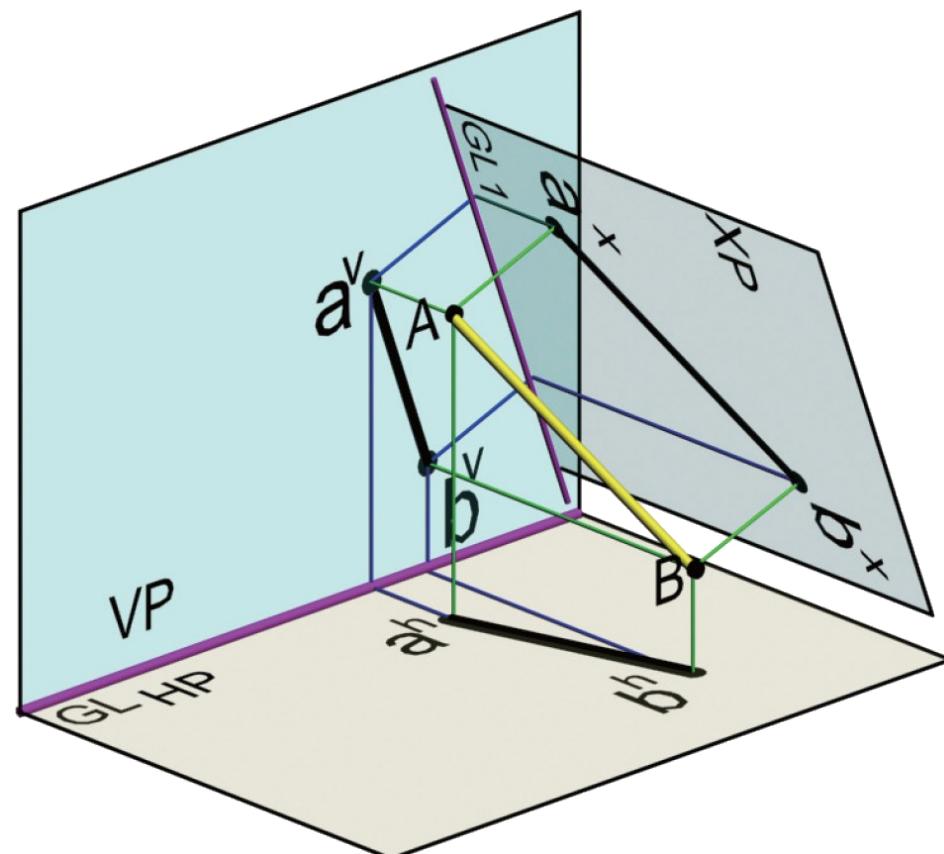


CAD圖 CAD-AVI

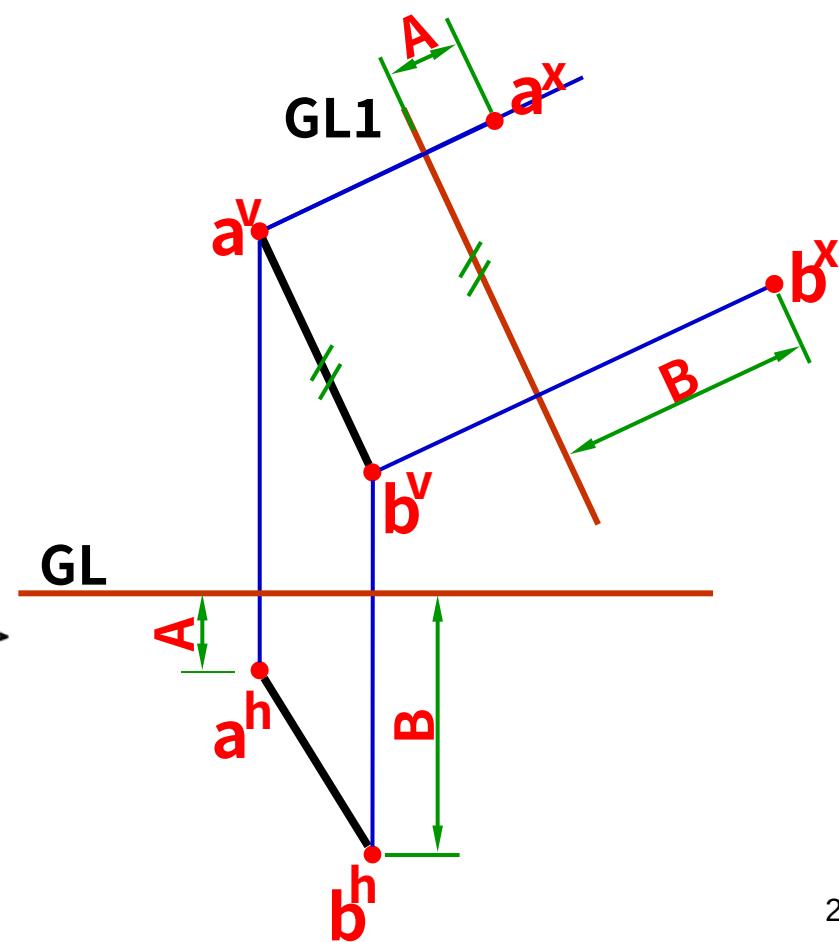


11.3 直線之副投影 3/5

- 分別作 A，B 兩點之副投影，得 a^x 與 b^x 。

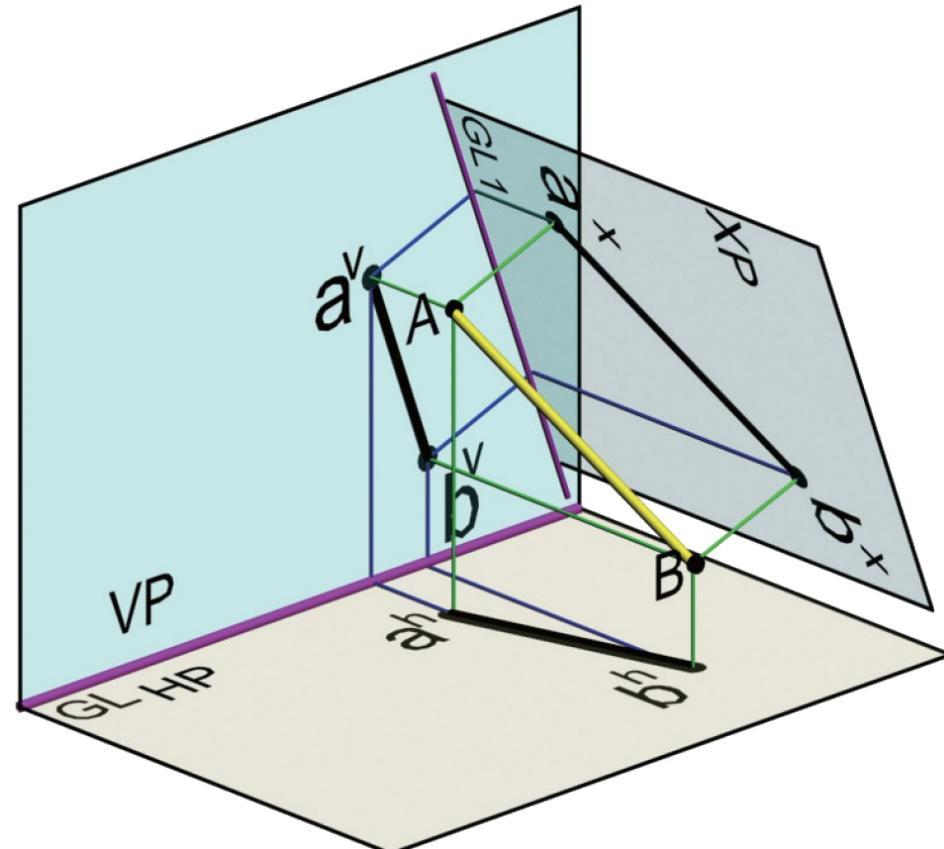


CAD圖 CAD-AVI

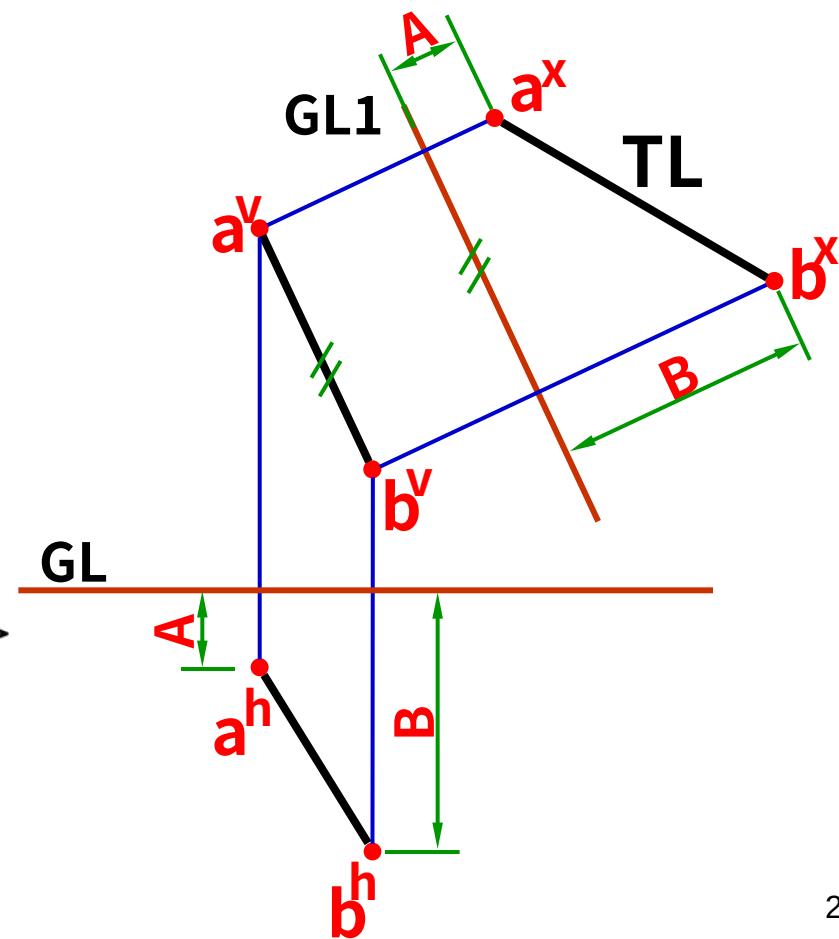


11.3 直線之副投影 4/5

- 連接 a^x 與 b^x 即為 AB 之副投影，得 AB 之實長。

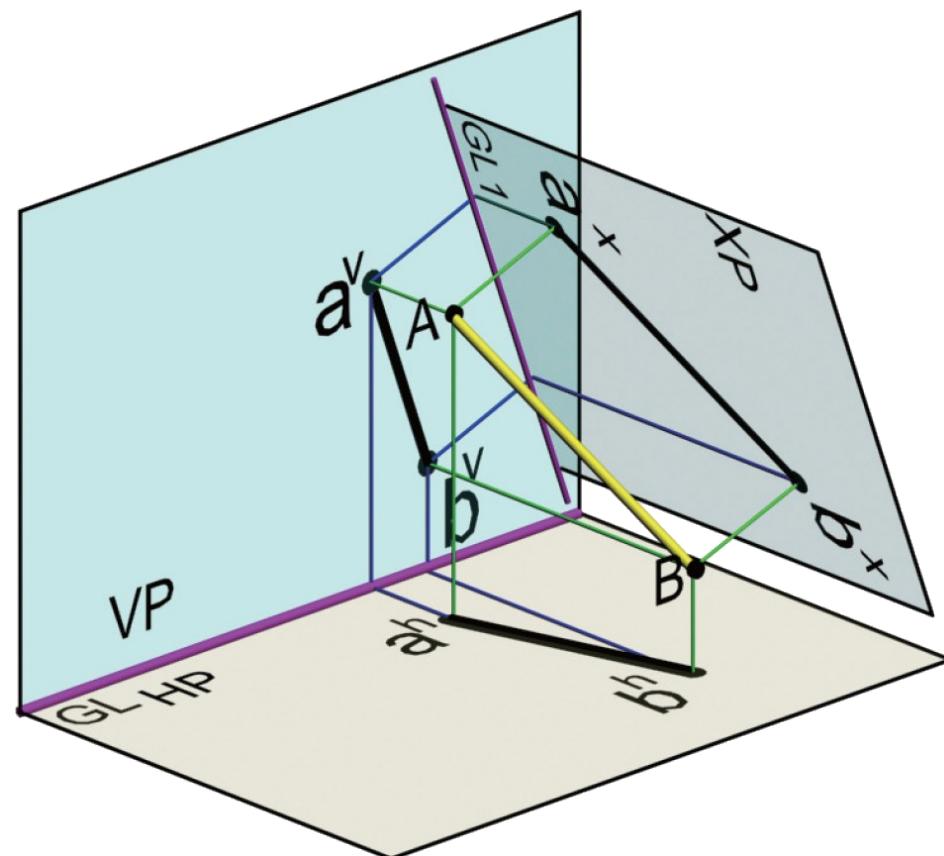


CAD圖 CAD-AVI

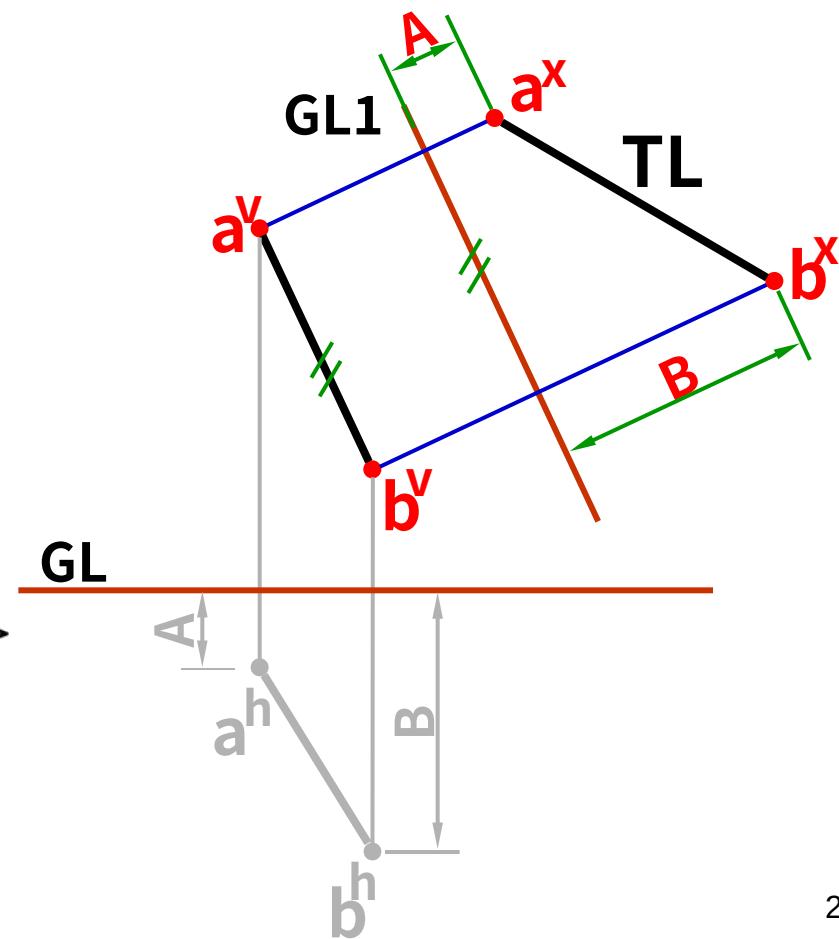


11.3 直線之副投影 5/5

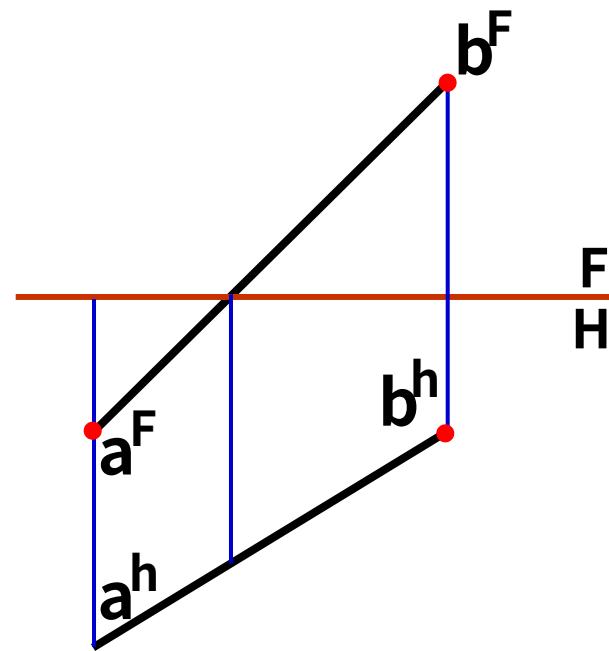
- 直線與投影面平行之性質



CAD圖 CAD-AVI

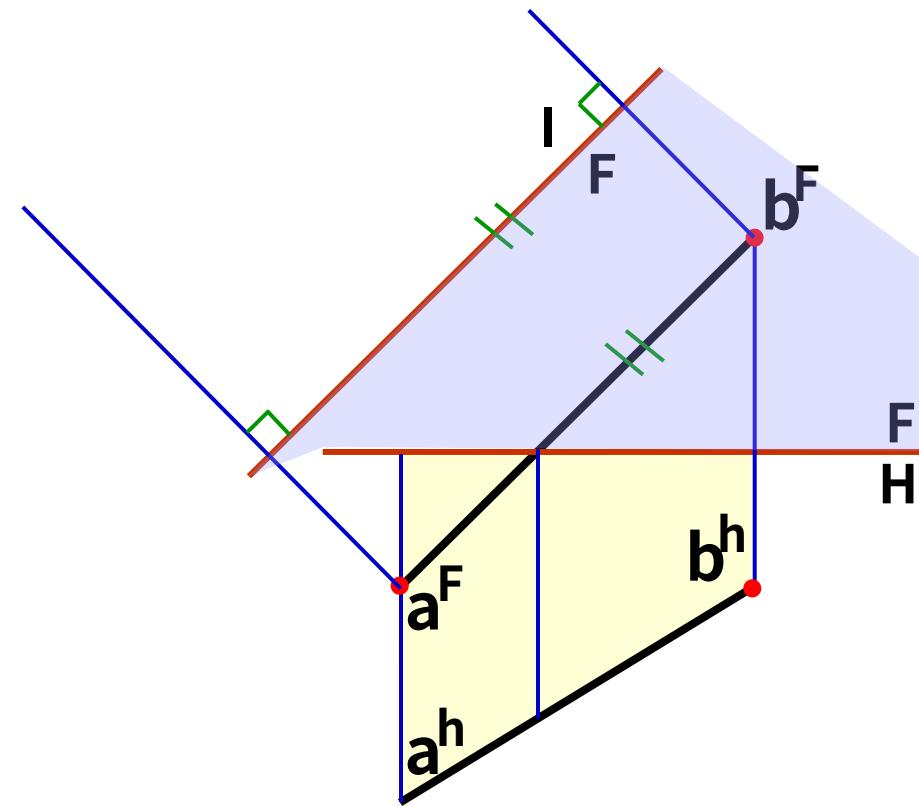


副投影法求直線之實長例 1/12



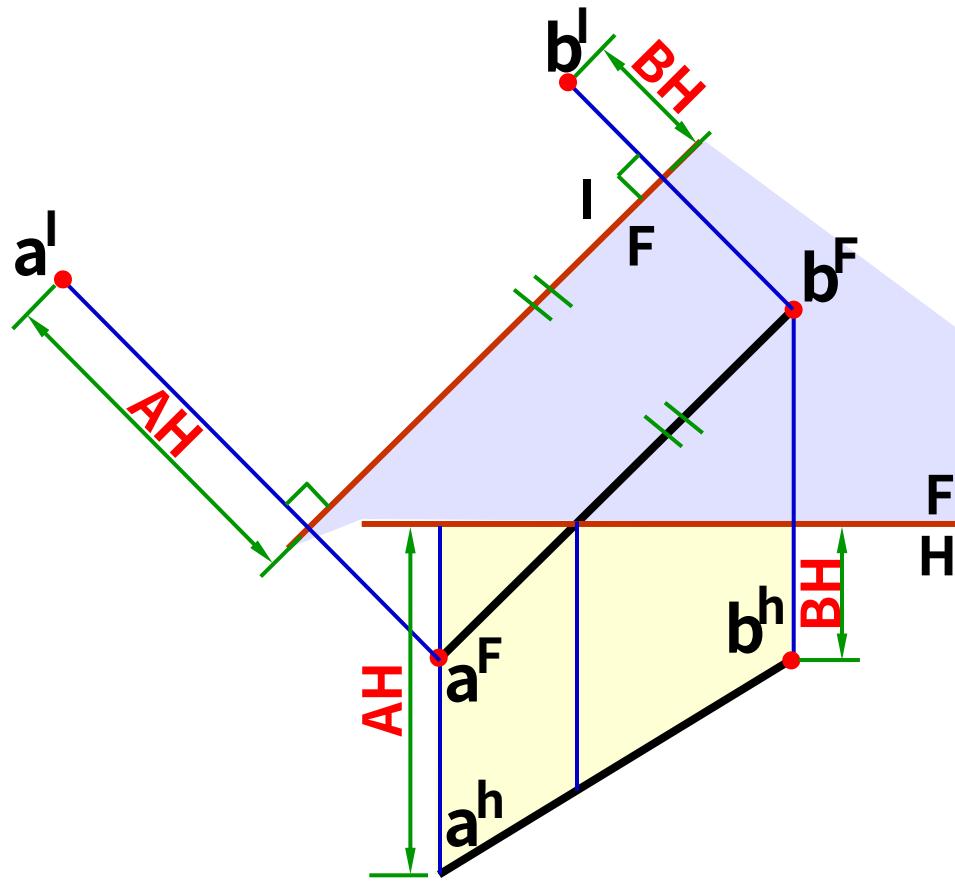
CAD圖

副投影法求直線之實長例 2/12

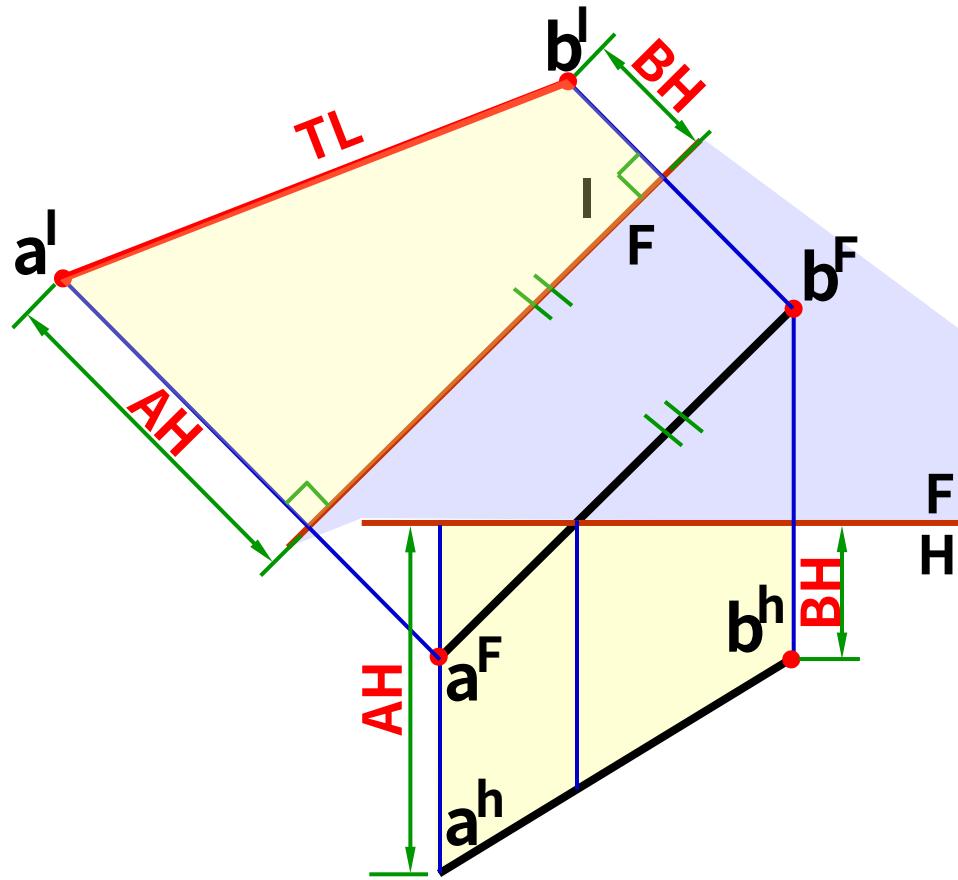


CAD圖

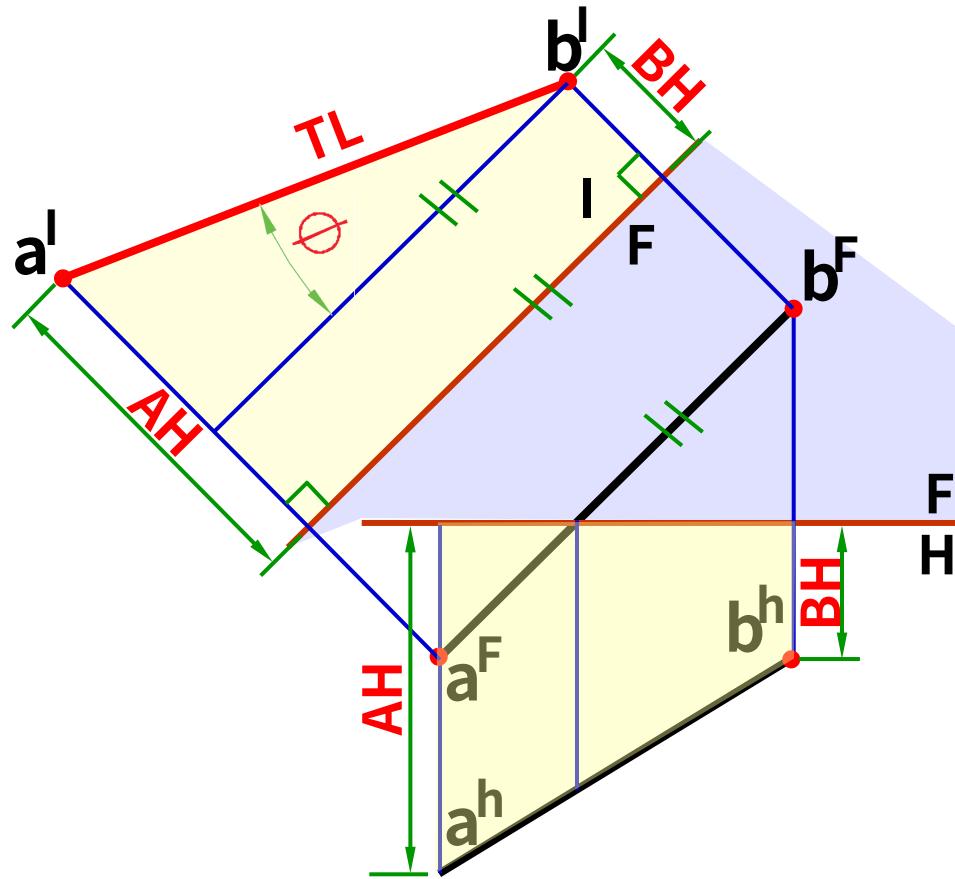
副投影法求直線之實長例 3/12



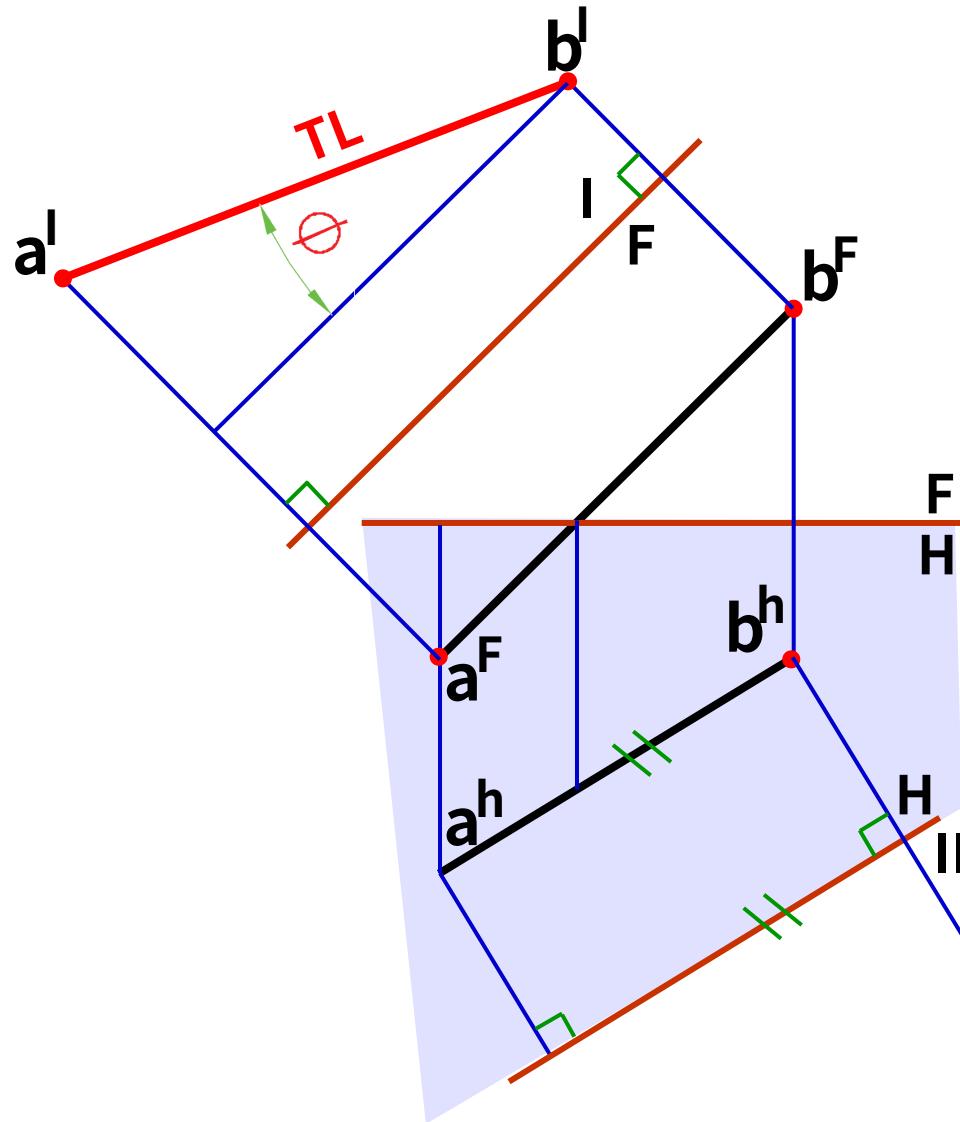
副投影法求直線之實長例 4/12



副投影法求直線之實長例 5/12

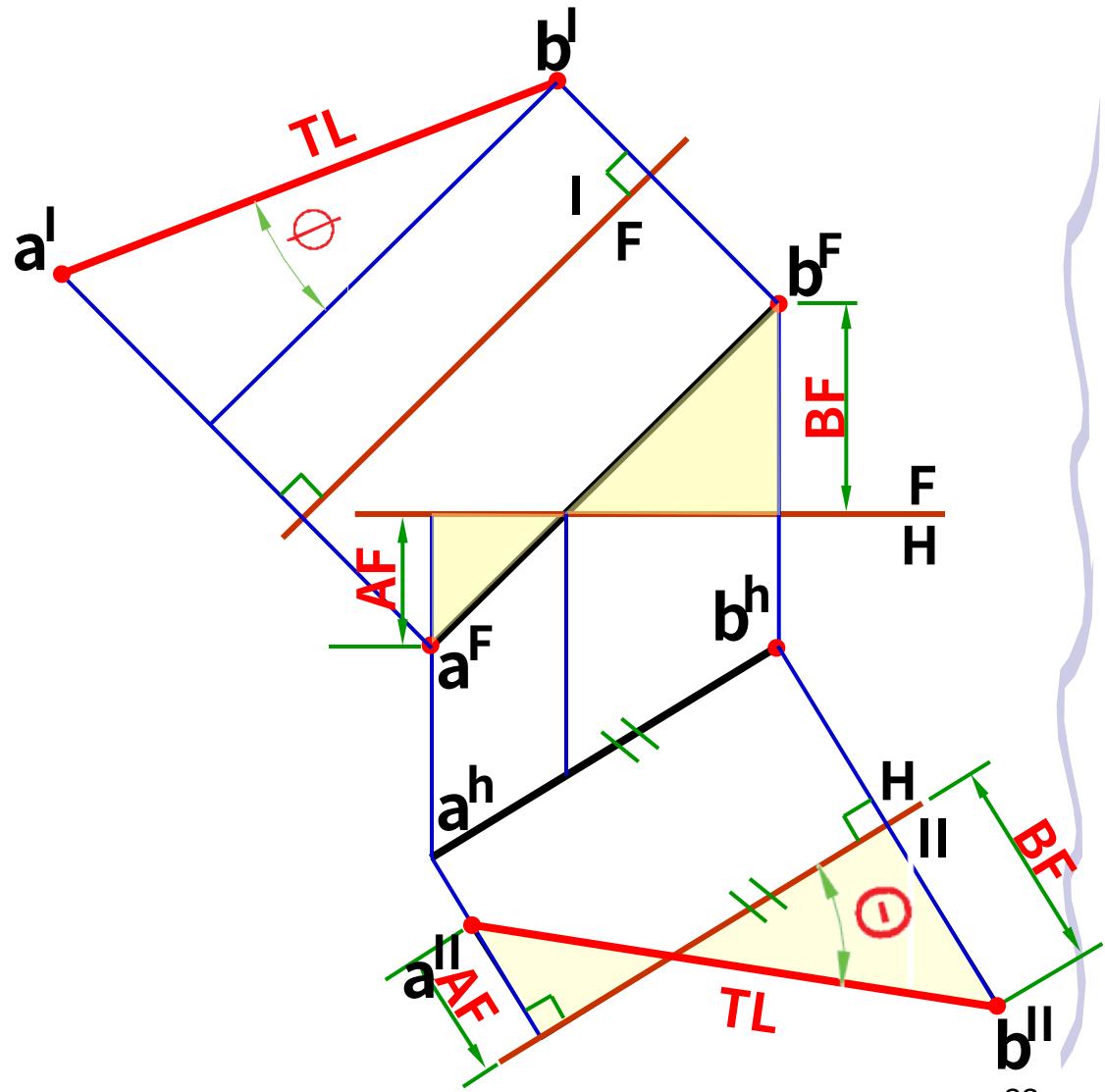


副投影法求直線之實長例 6/12



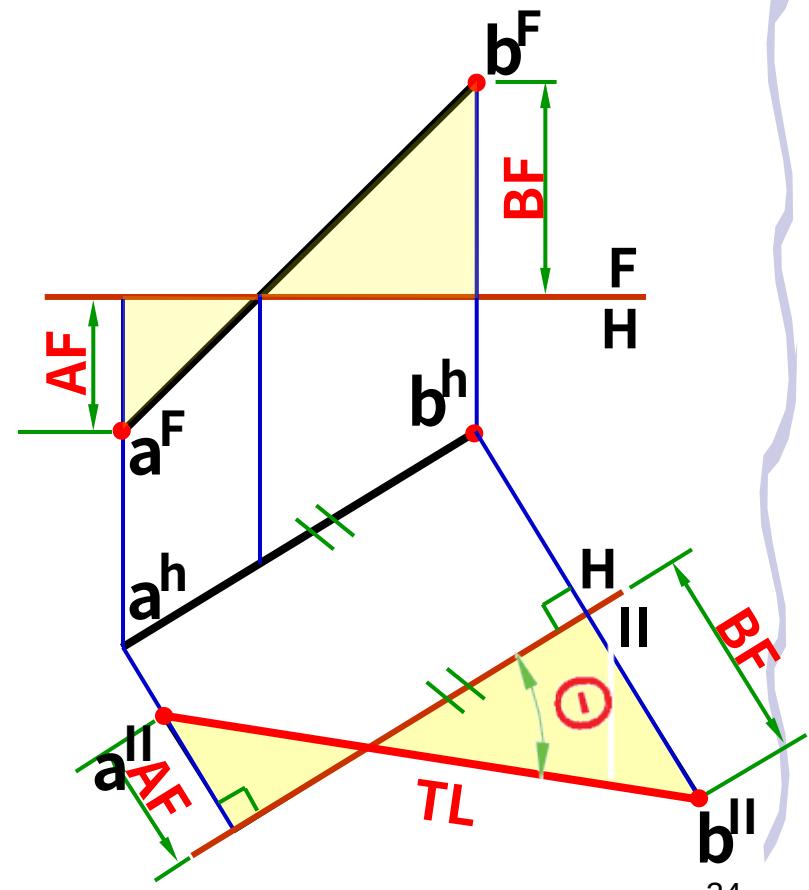
CAD圖

副投影法求直線之實長例 7/12



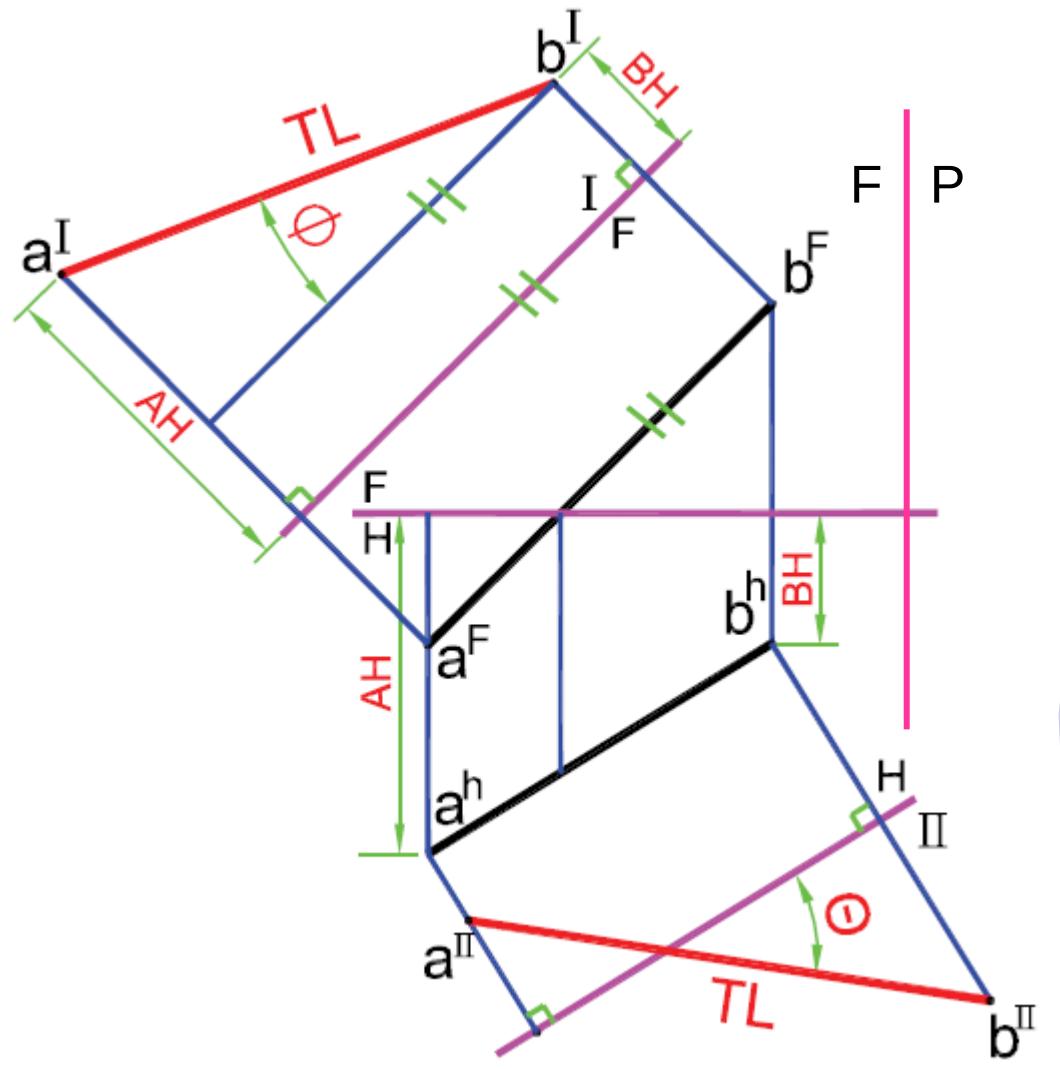
CAD圖

副投影法求直線之實長例 7/12B



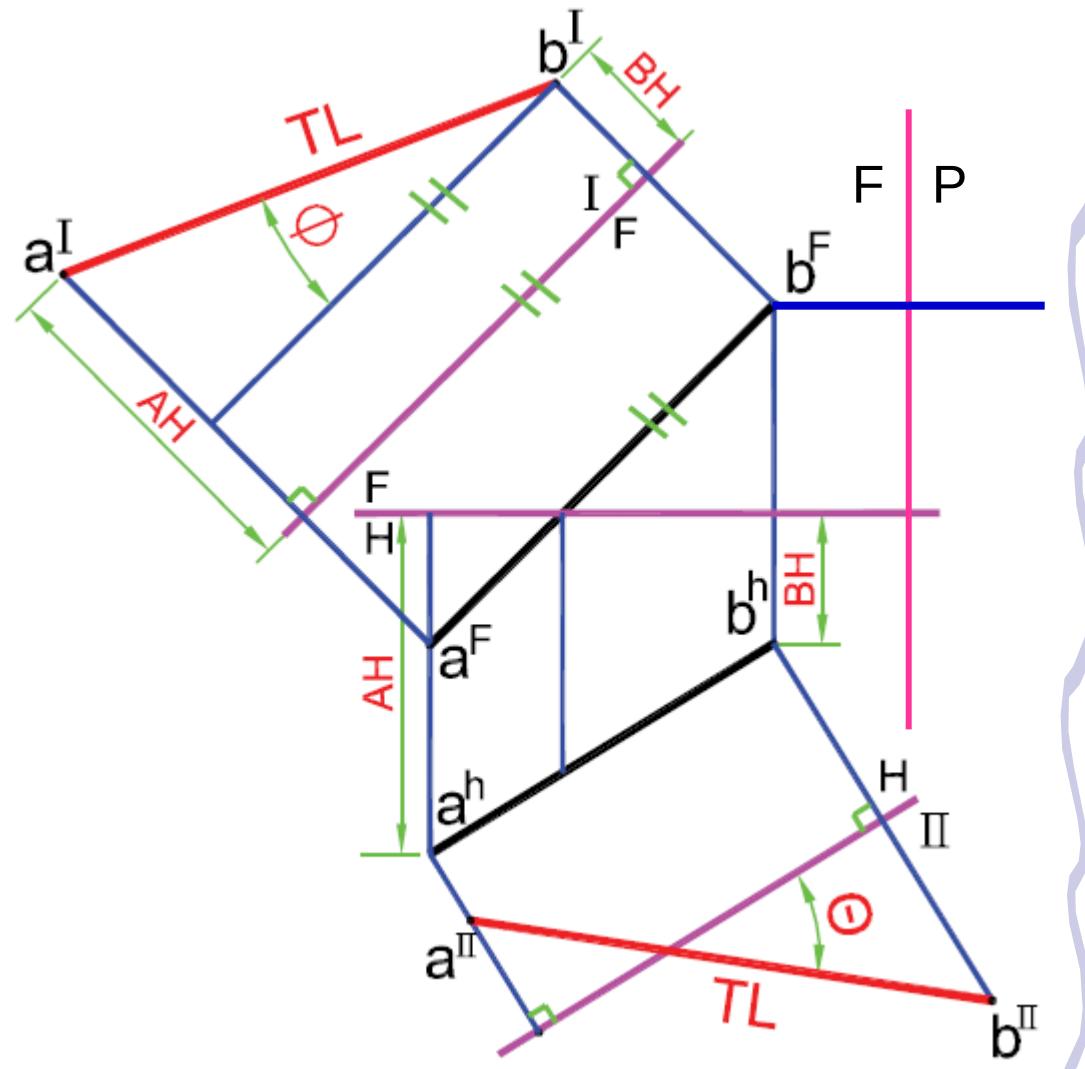
CAD圖

副投影法求直線之實長例 8/12



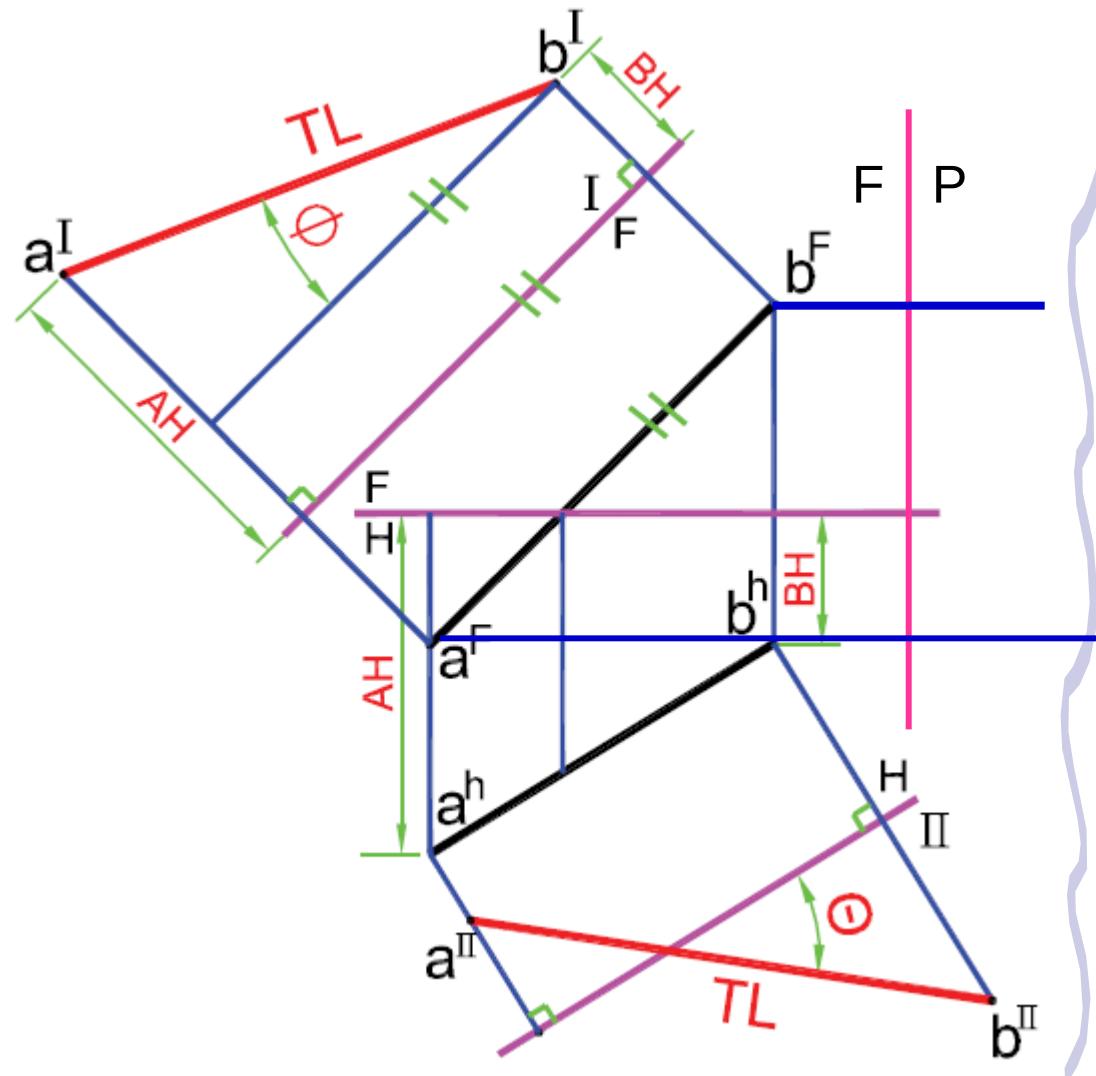
CAD圖

副投影法求直線之實長例 9/12



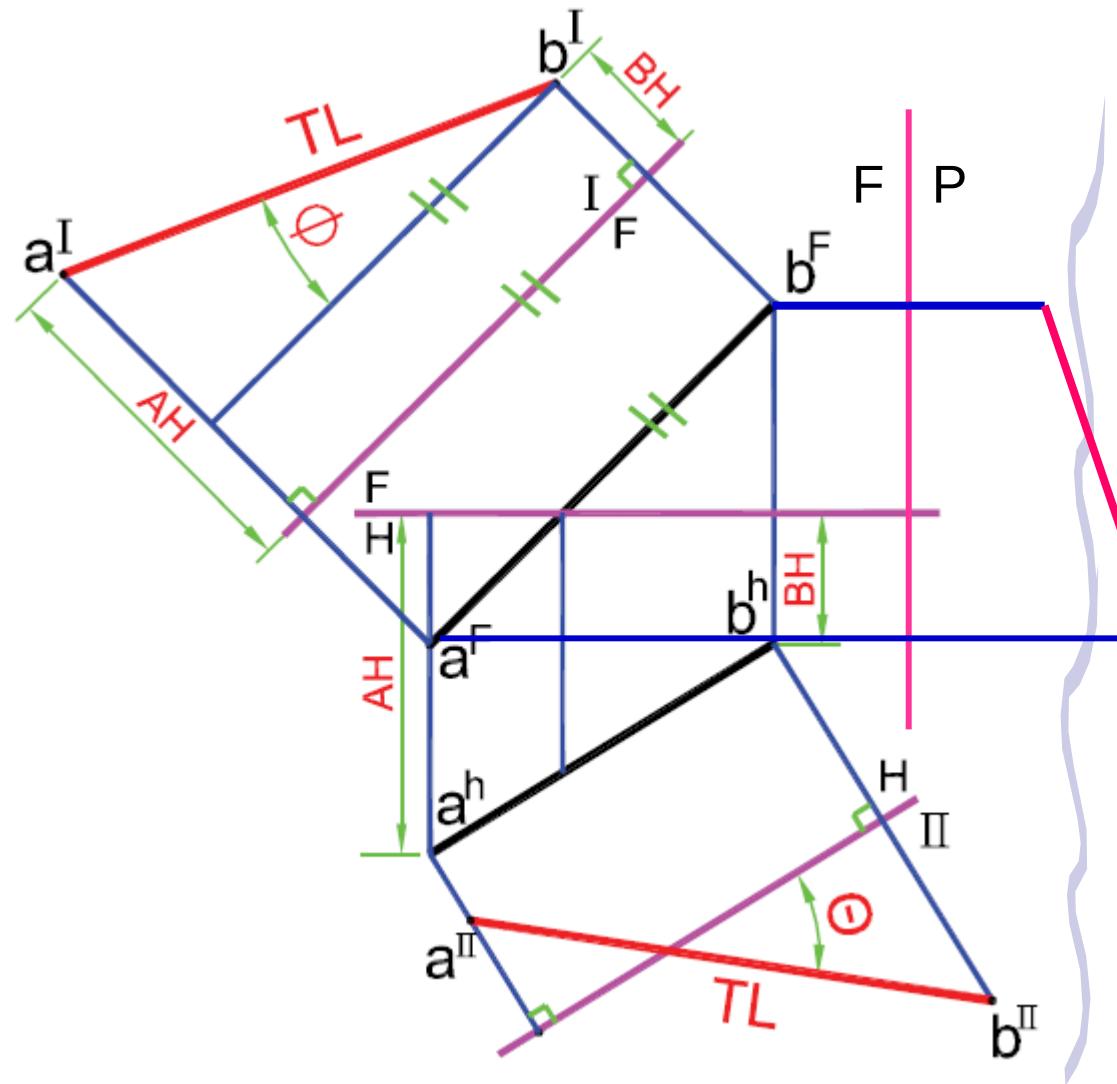
CAD圖

副投影法求直線之實長例 10/12



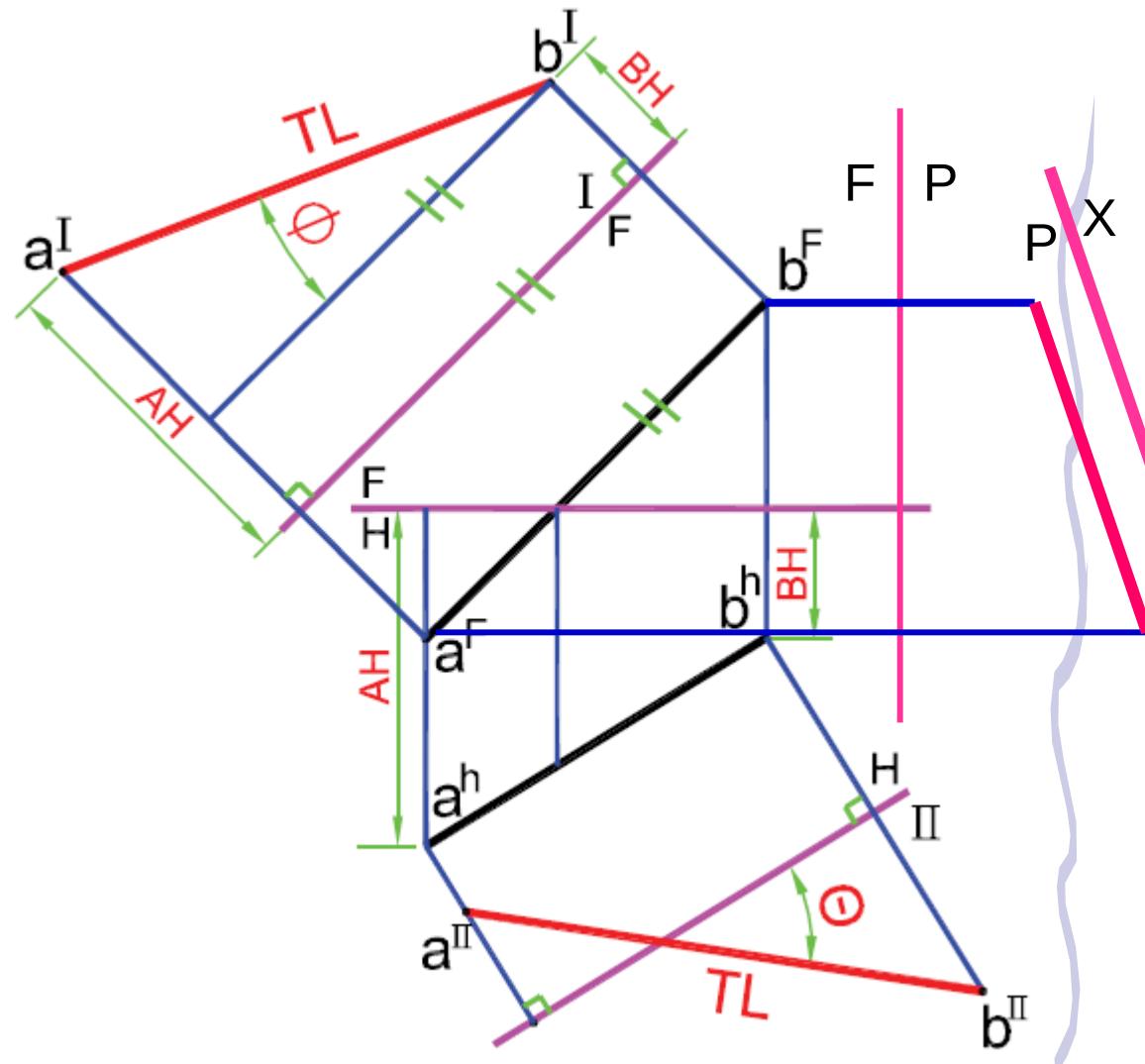
CAD圖

副投影法求直線之實長例 11/12



CAD圖

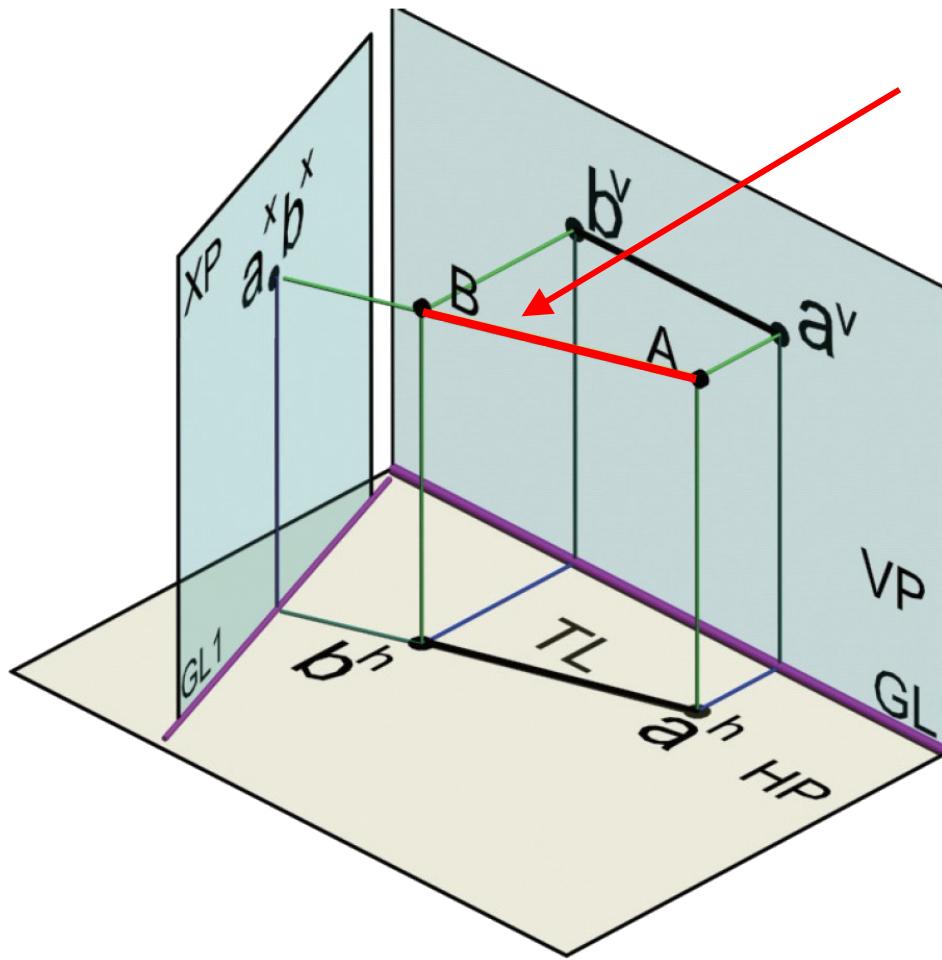
副投影法求直線之實長例 12/12



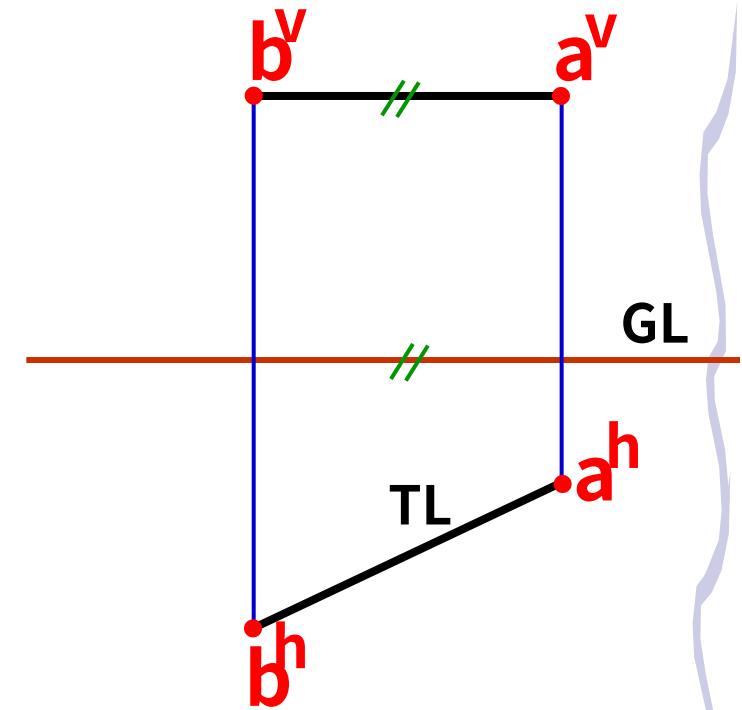
CAD圖

作副投影面求直線之端視圖 1/3

- 作副投影面求直線之端視圖。

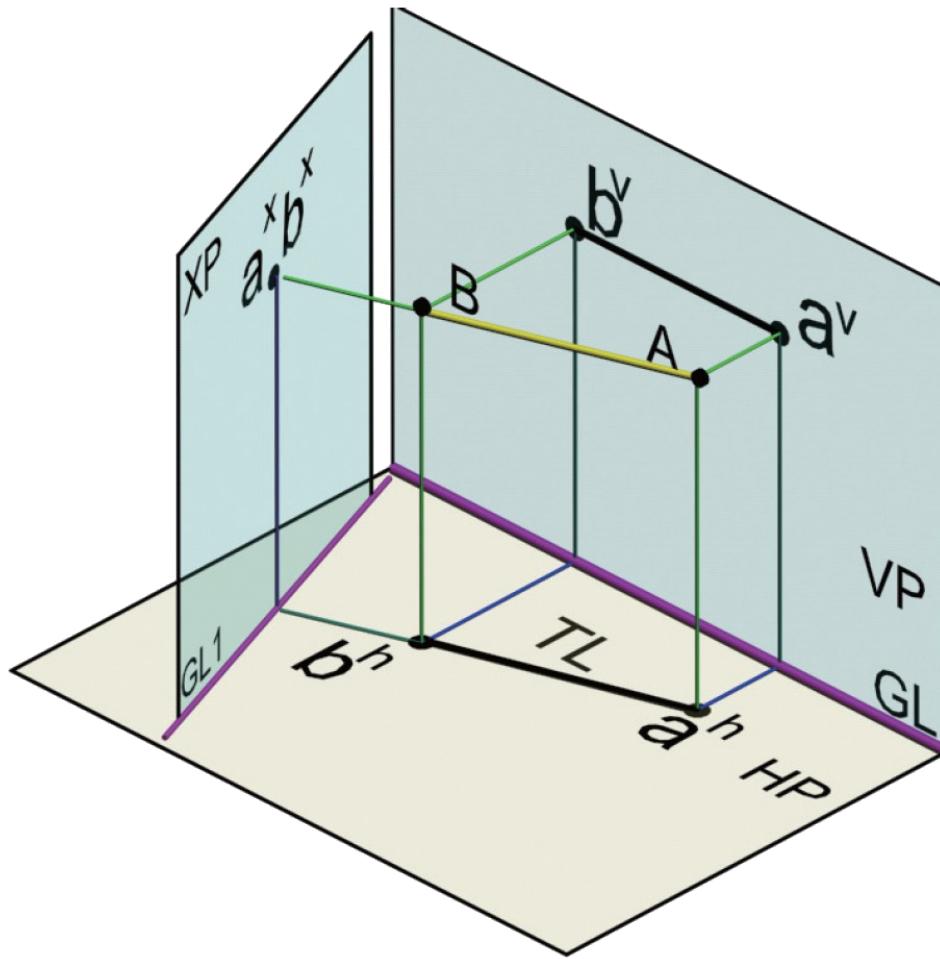


CAD圖 [CAD-AVI](#)

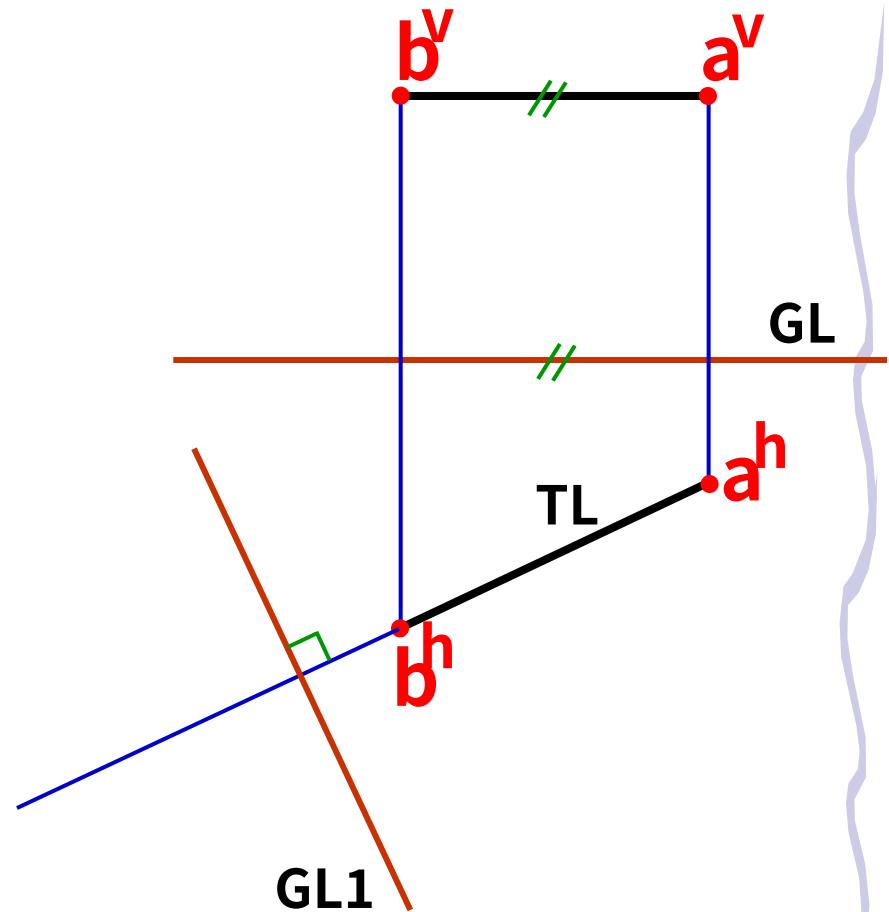


作副投影面求直線之端視圖 2/3

- 作副基線 GL1 與 $a^h b^h$ 垂直。

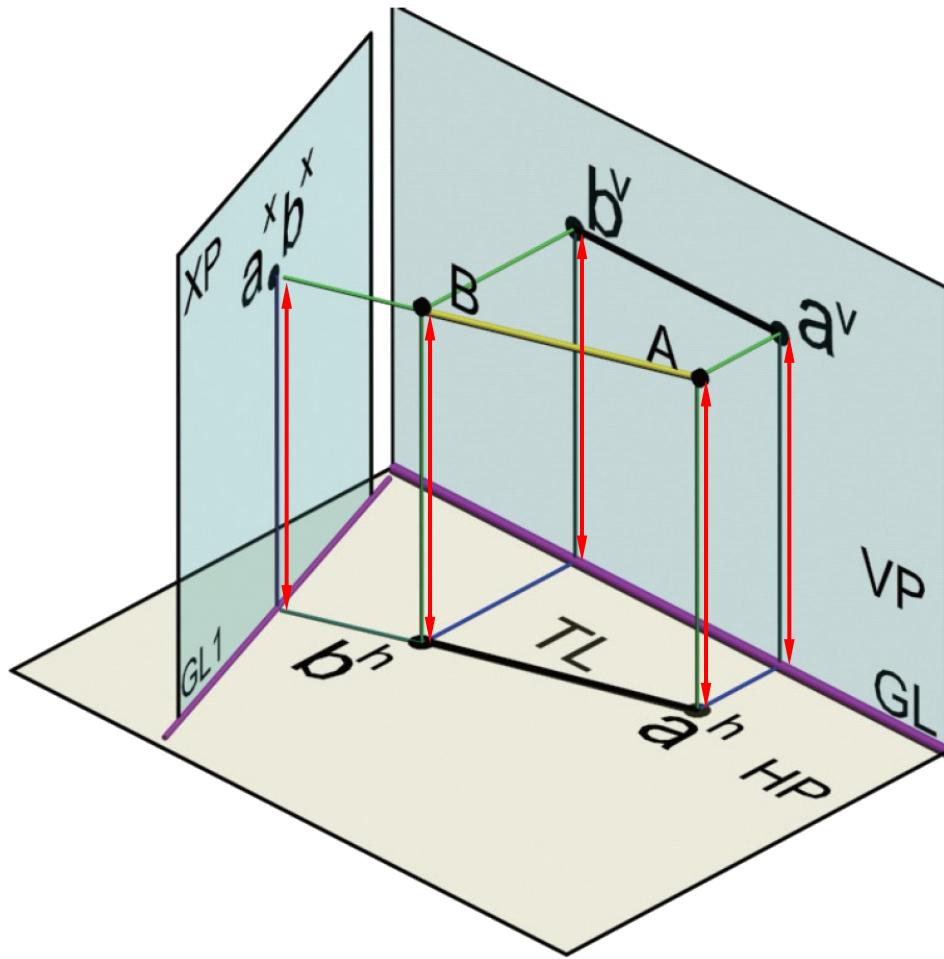


CAD圖 [CAD-AVI](#)

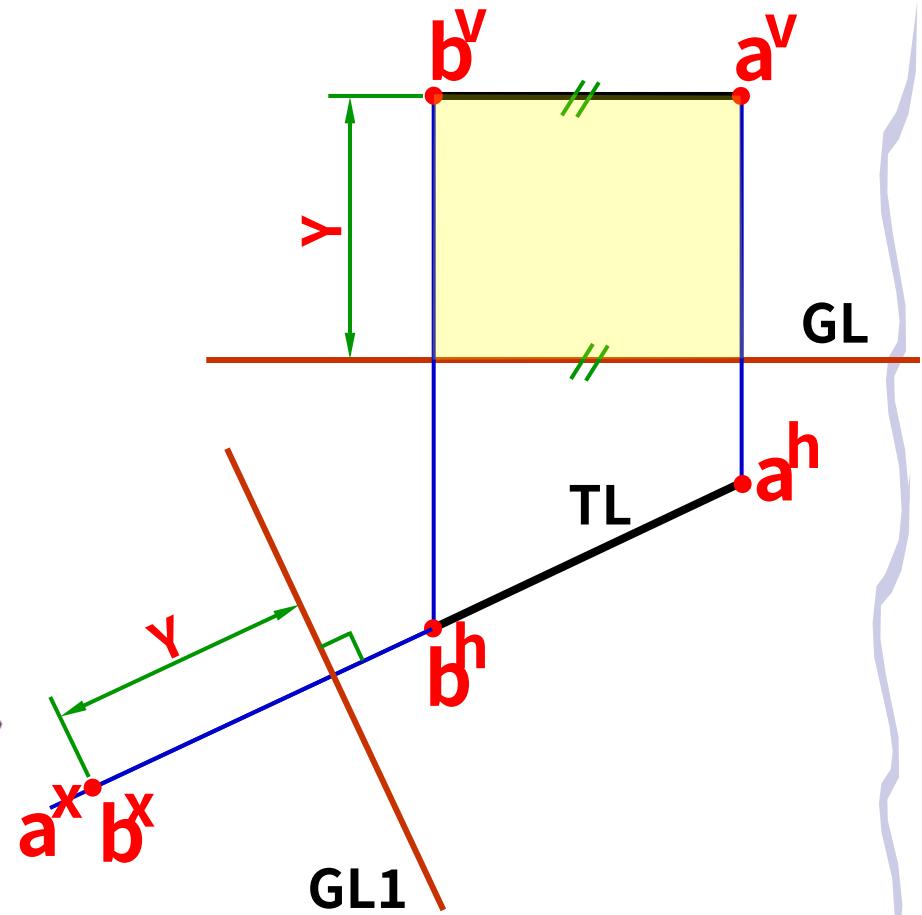


作副投影面求直線之端視圖 3/3

- 求作 A，B 兩點之副投影，得 a_x^* 與 b_x^* 重合，即得直線之端視圖。

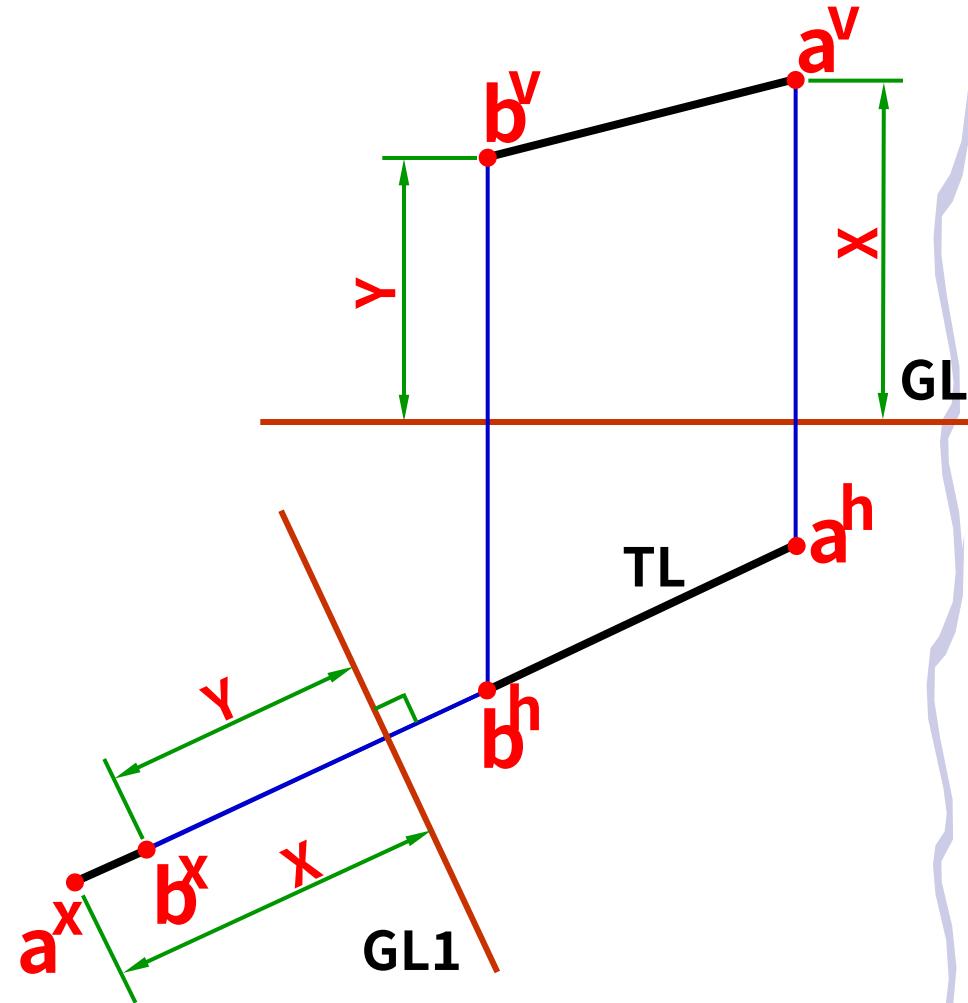


CAD圖 [CAD-AVI](#)



作副投影面求直線之端視圖 3/3b

- 直線與副投影面未垂直。

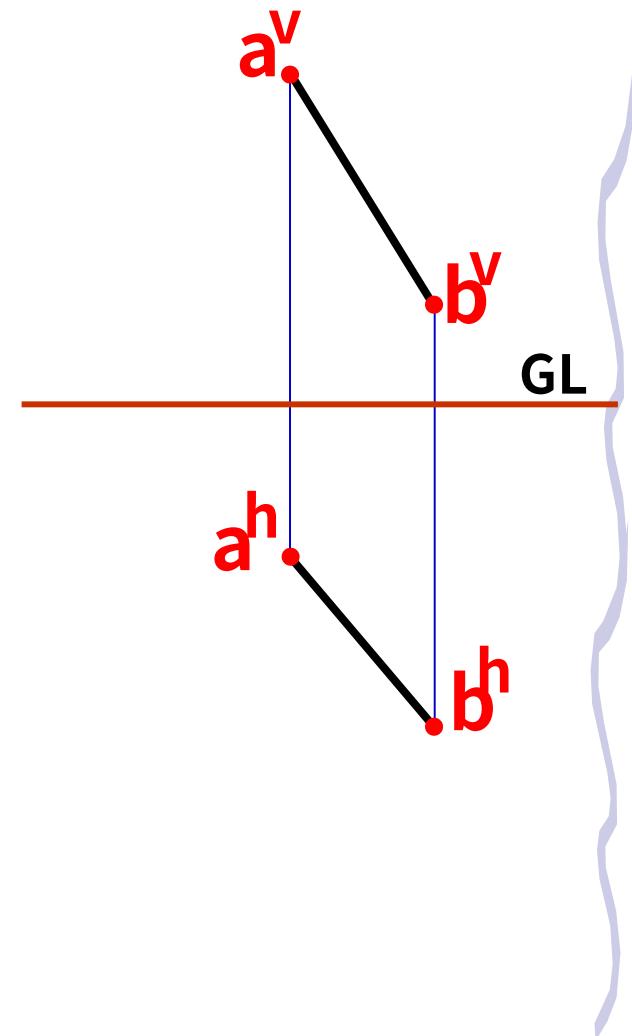


11.4 第二副投影面

- 副投影中，必要時可經由第一副投影面再設立另一副投影面，稱之為第二副投影面。
- 空間一點 A 之第二副投影以 a_y 表示，第二副投影面必須垂直於第一副投影面，兩者之間的交線稱之為第二副基線，以 GL2 表示。
- 第二副投影面必須以 GL2 為軸旋轉至與第一副投影面同一平面。
- 當第一副投影面與空間的一直線平行時，此時可設立第二副投影面與該直線垂直，而得直線之第二副投影呈現端視圖。

以副投影面法求複斜直線端視圖 1/6

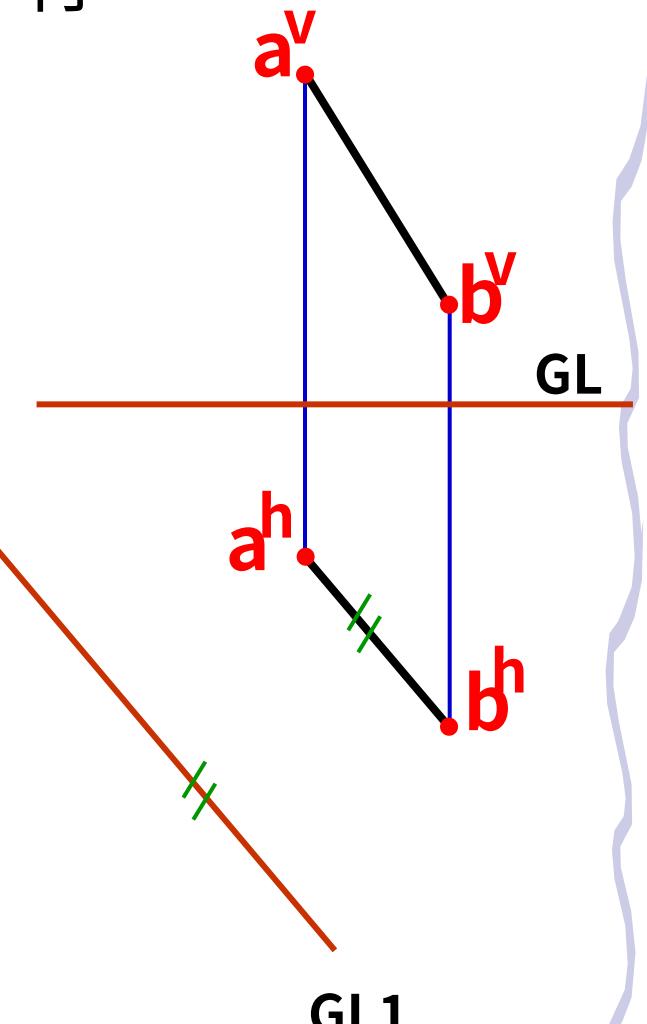
- 已知直線之投影。



CAD圖 [CAD-AVI](#)

以副投影面法求複斜直線端視圖 2/6

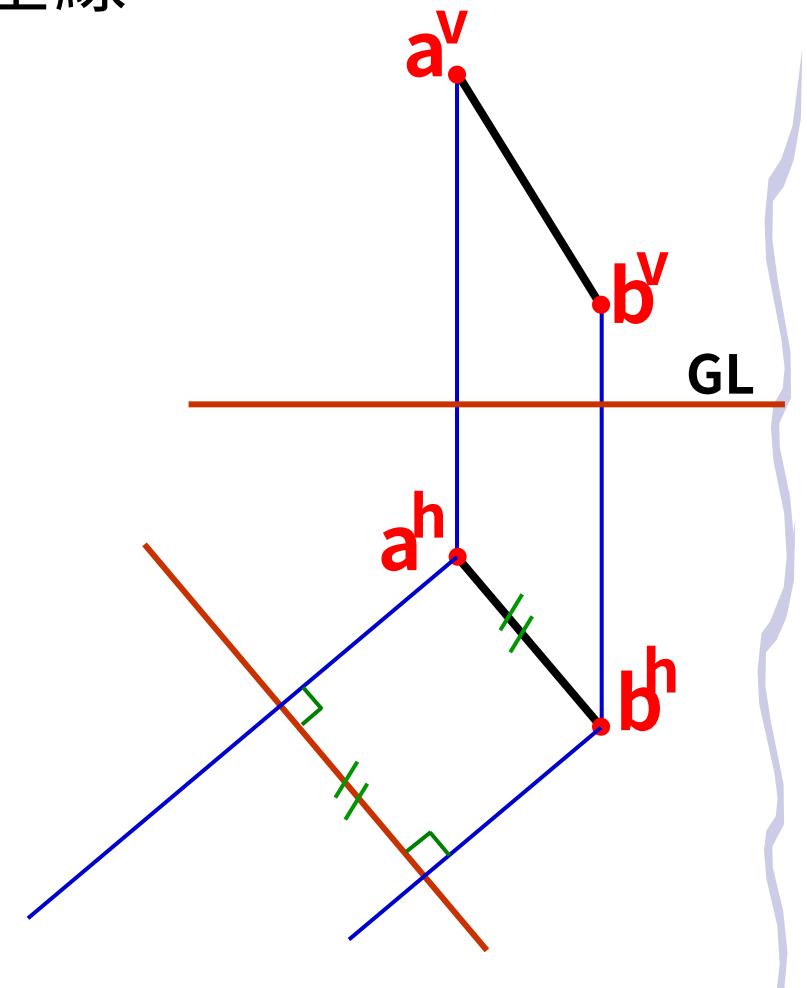
- 作第一副基線與直線水平投影平行。



CAD圖 [CAD-AVI](#)

以副投影面法求複斜直線端視圖 3/6

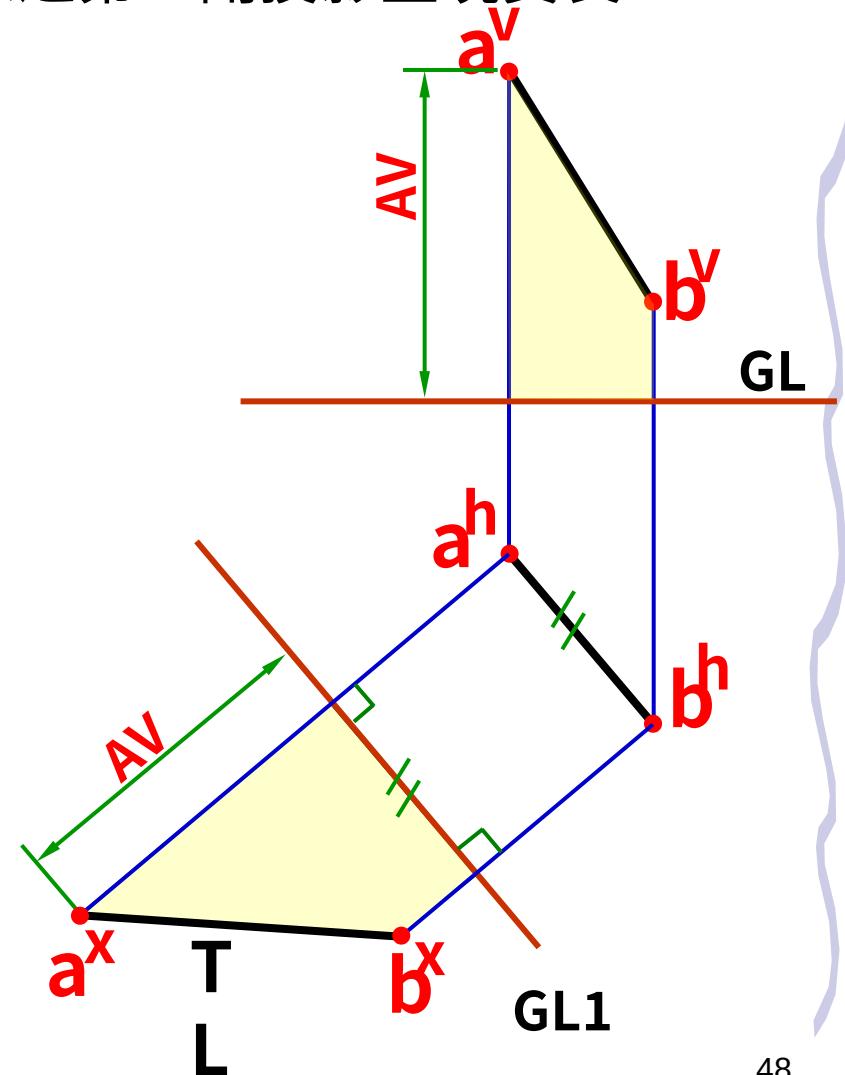
- 過水平投影各點向 GL1 作垂線。



CAD圖 [CAD-AVI](#)

以副投影面法求複斜直線端視圖 4/6

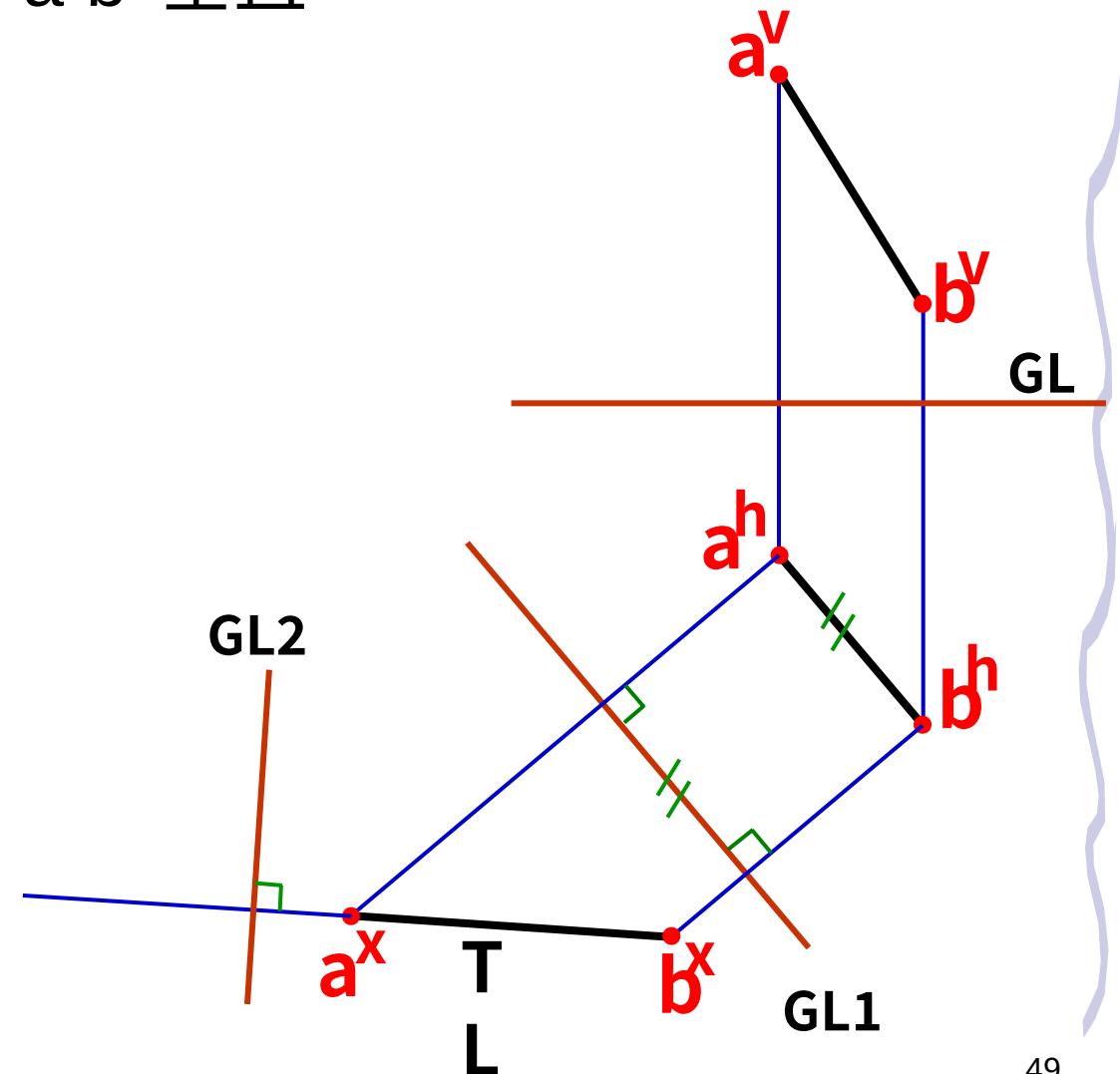
- 求作兩端點之第一副投影，直線之第一副投影呈現實長。



CAD圖 [CAD-AVI](#)

以副投影面法求複斜直線端視圖 5/6

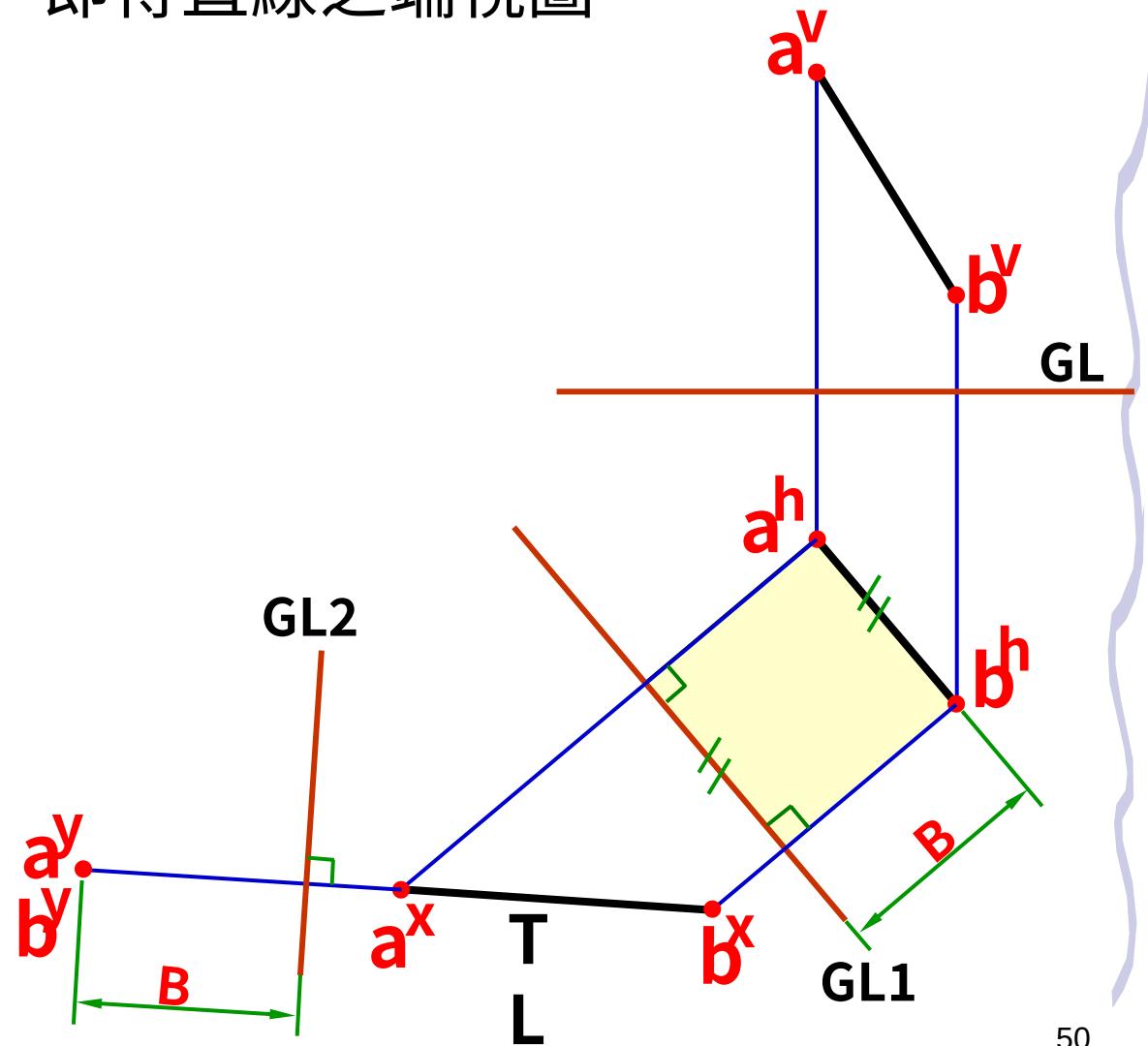
- 作副基線 GL2 與 $a^x b^x$ 垂直。



CAD圖 [CAD-AVI](#)

以副投影面法求複斜直線端視圖 6/6

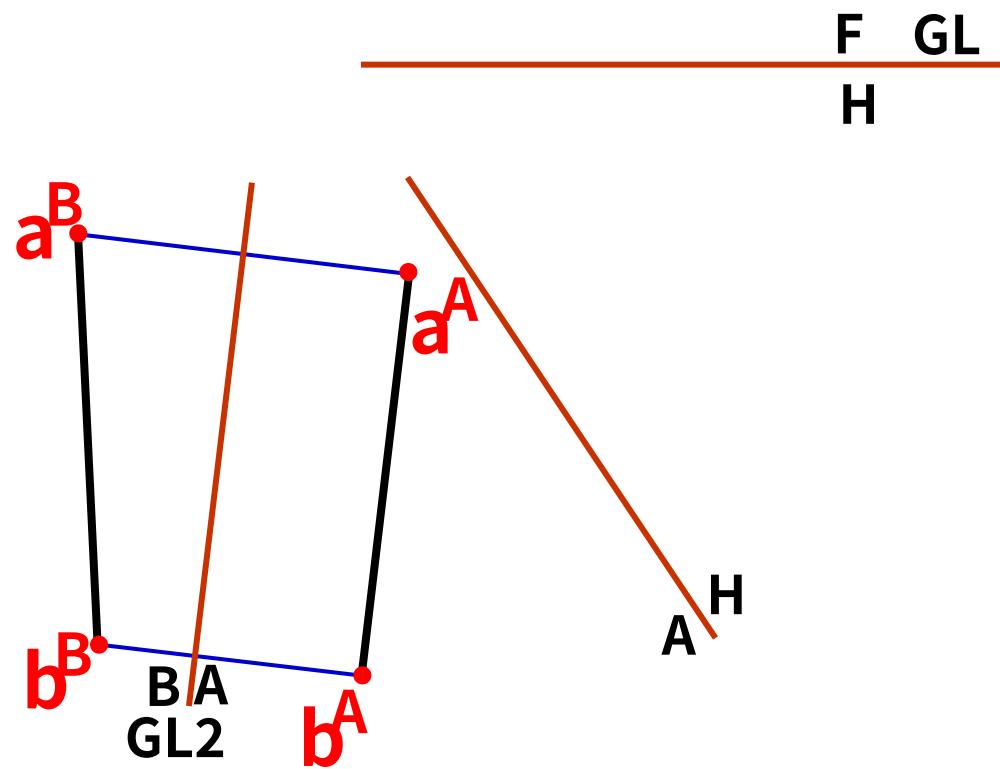
- 得 a_y 與 b_y 重合，即得直線之端視圖。



CAD圖 [CAD-AVI](#)

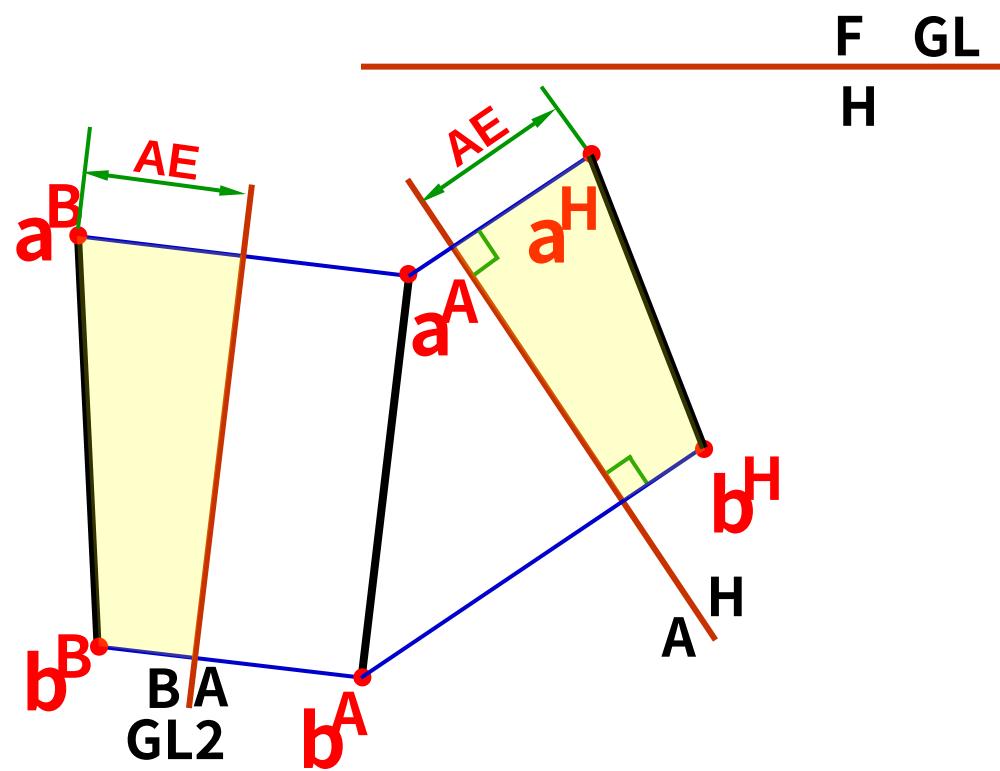
已知副投影求直立與水平投影 1/3

■ ○



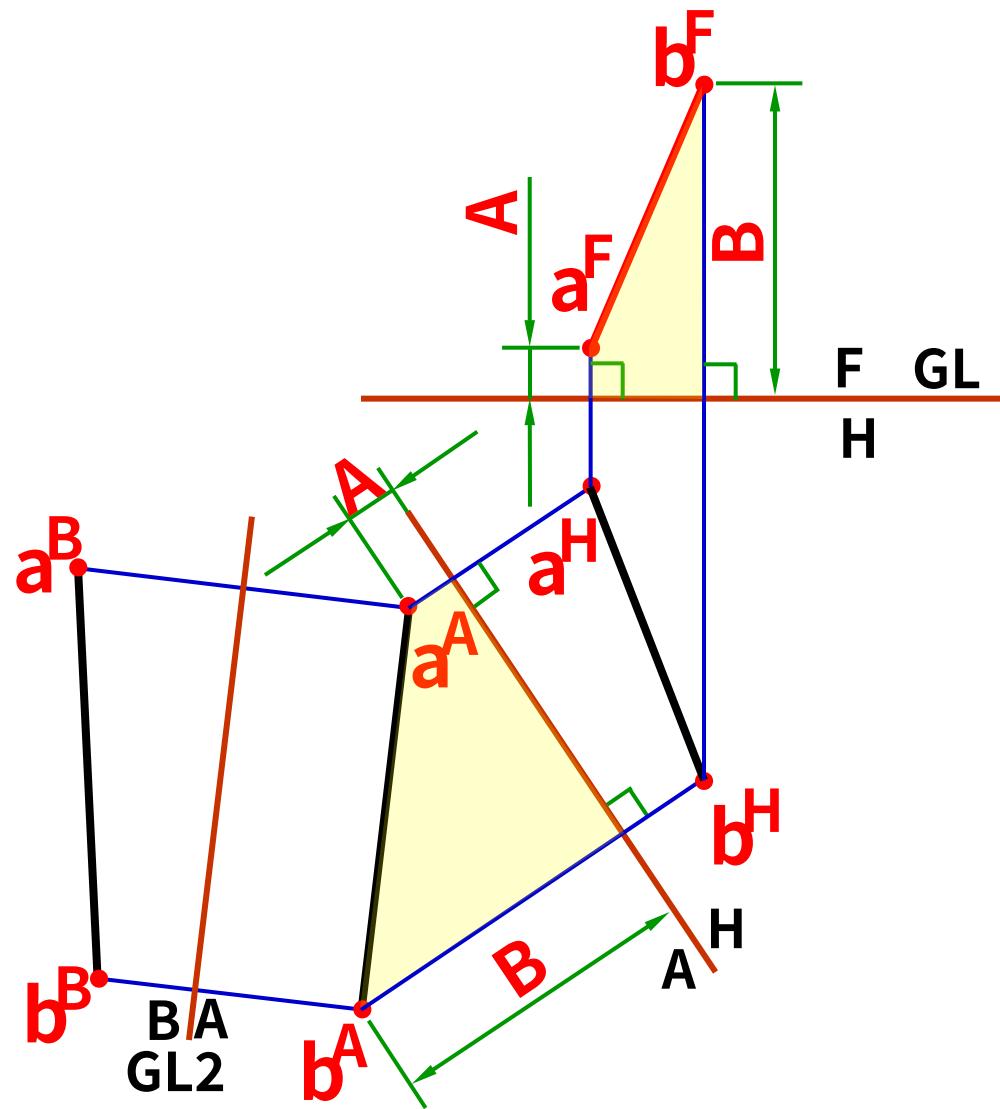
已知副投影求直立與水平投影 2/3

■ ○



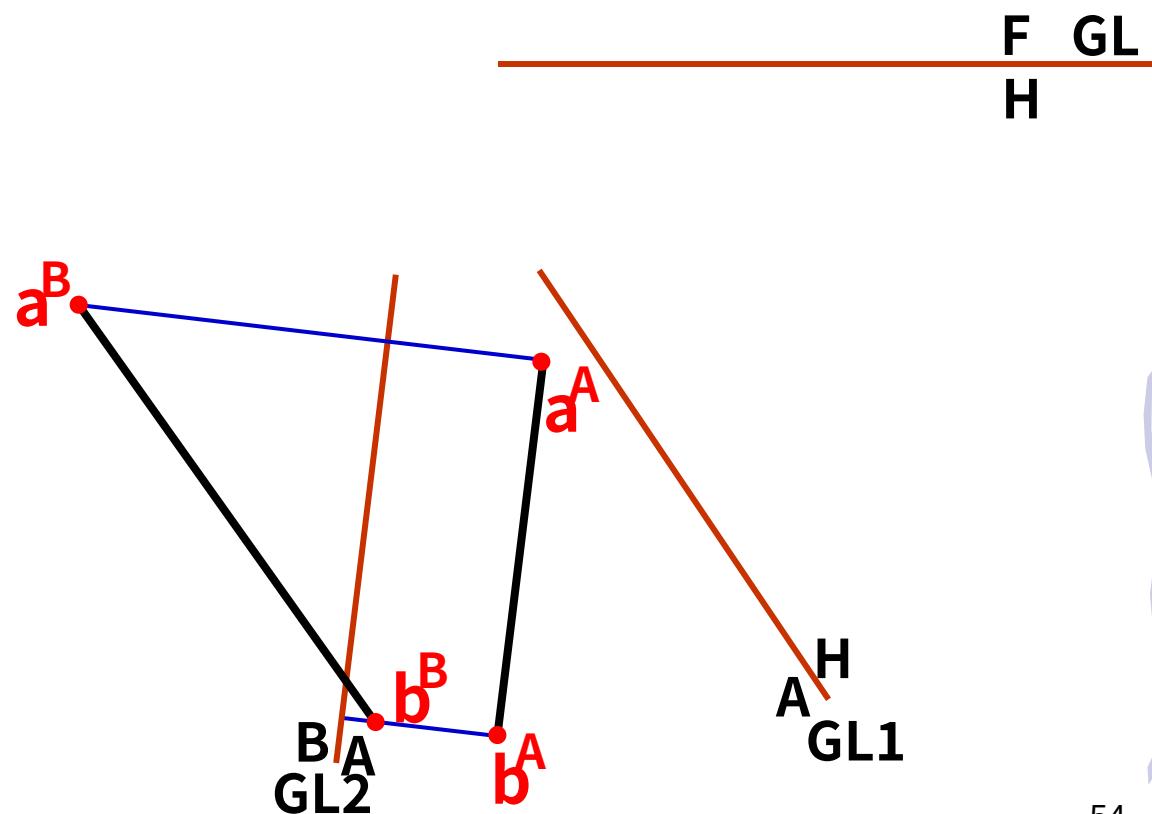
已知副投影求直立與水平投影 3/3

■ ○



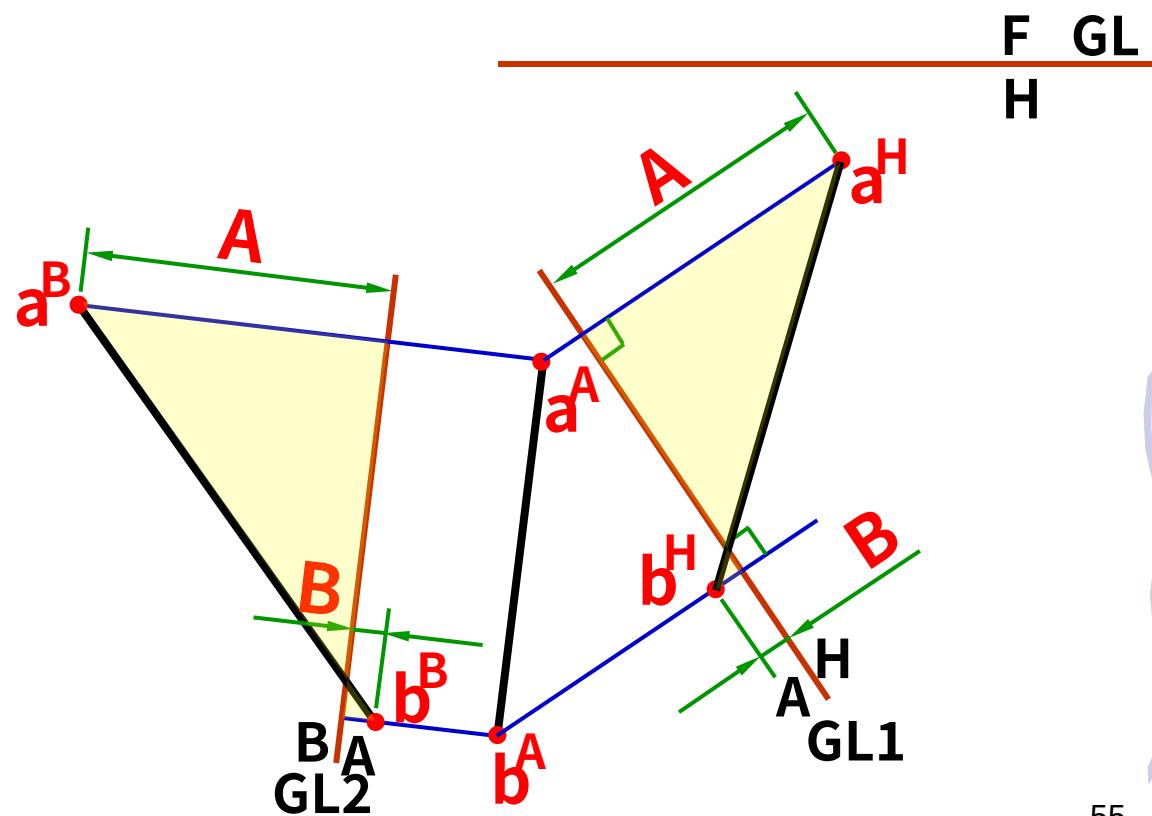
已知副投影求直立與水平投影例二 1/3

■ ○



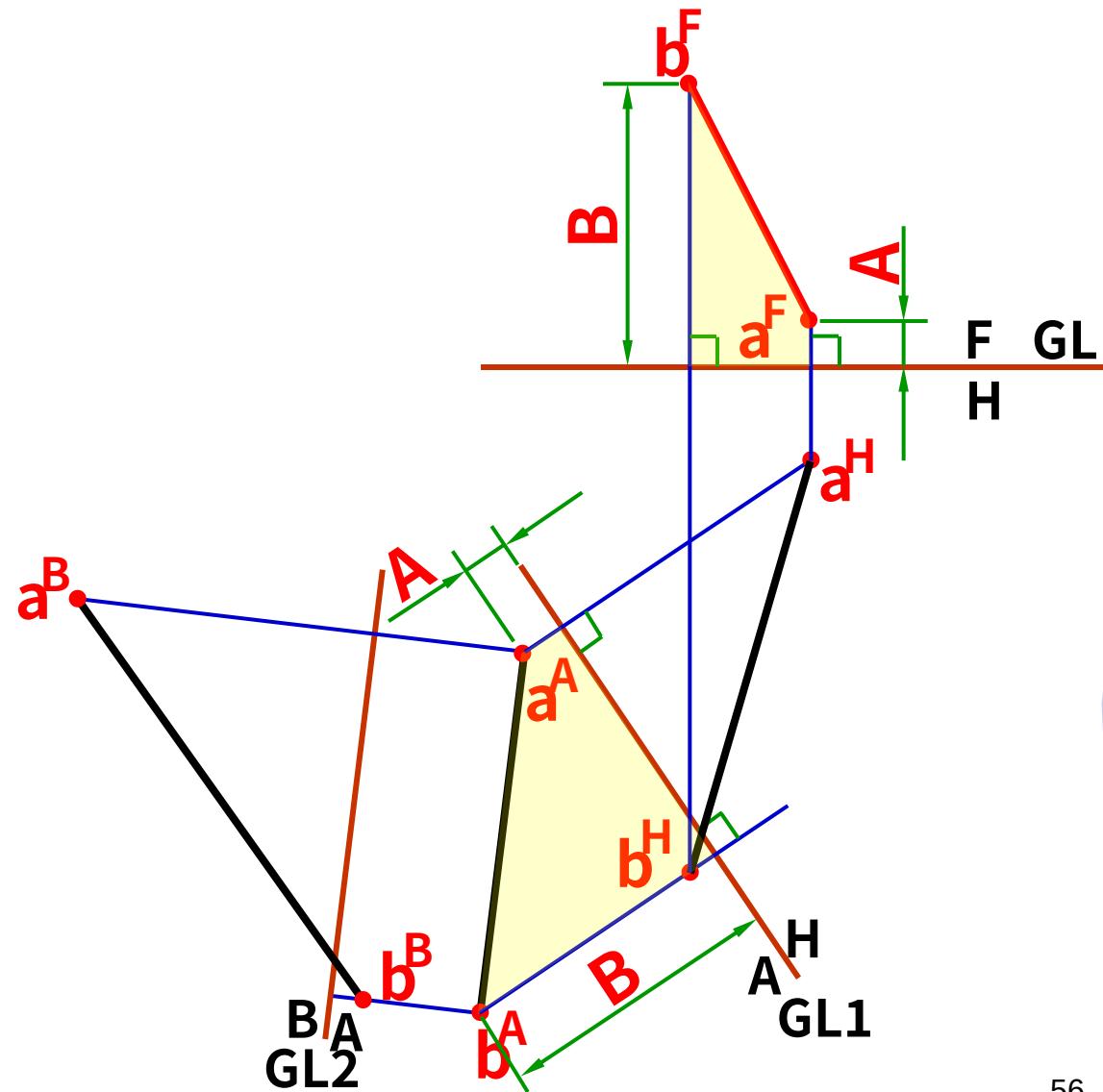
已知副投影求直立與水平投影例二 2/3

■ ○

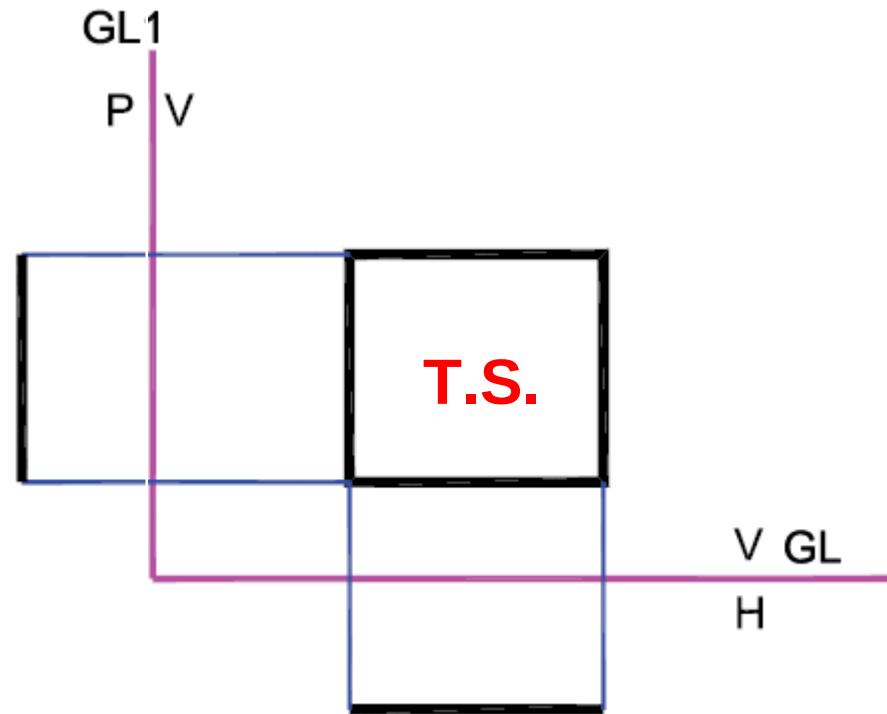
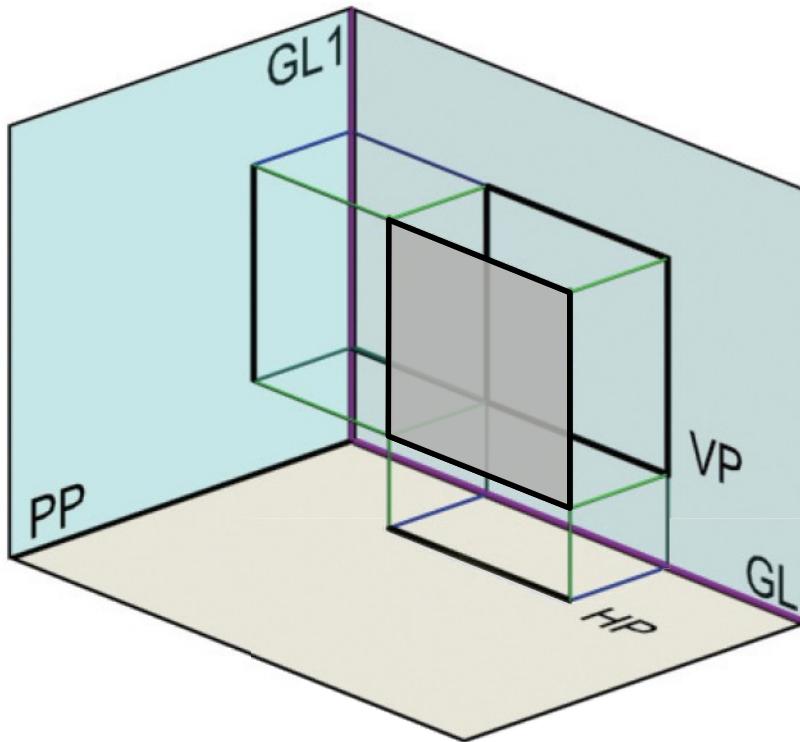


已知副投影求直立與水平投影例二 3/3

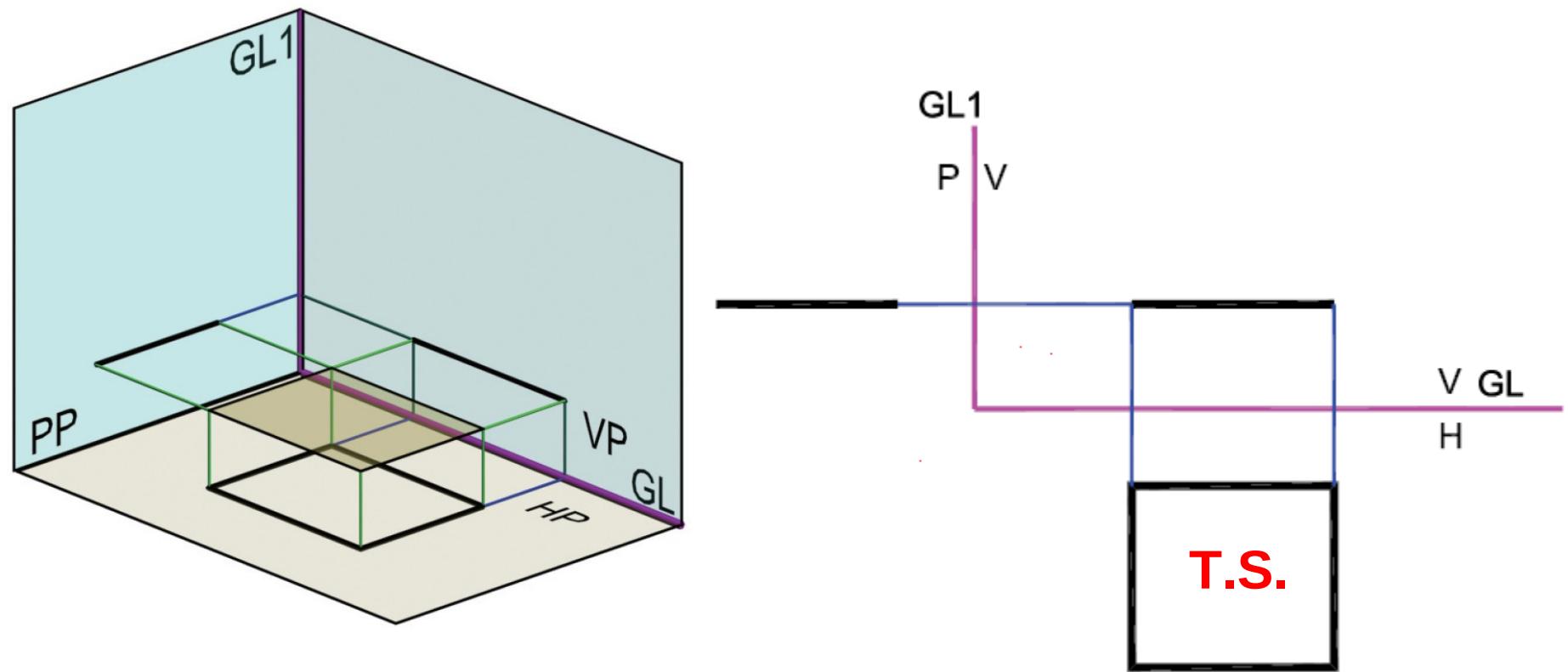
■ ○



直立面及其投影



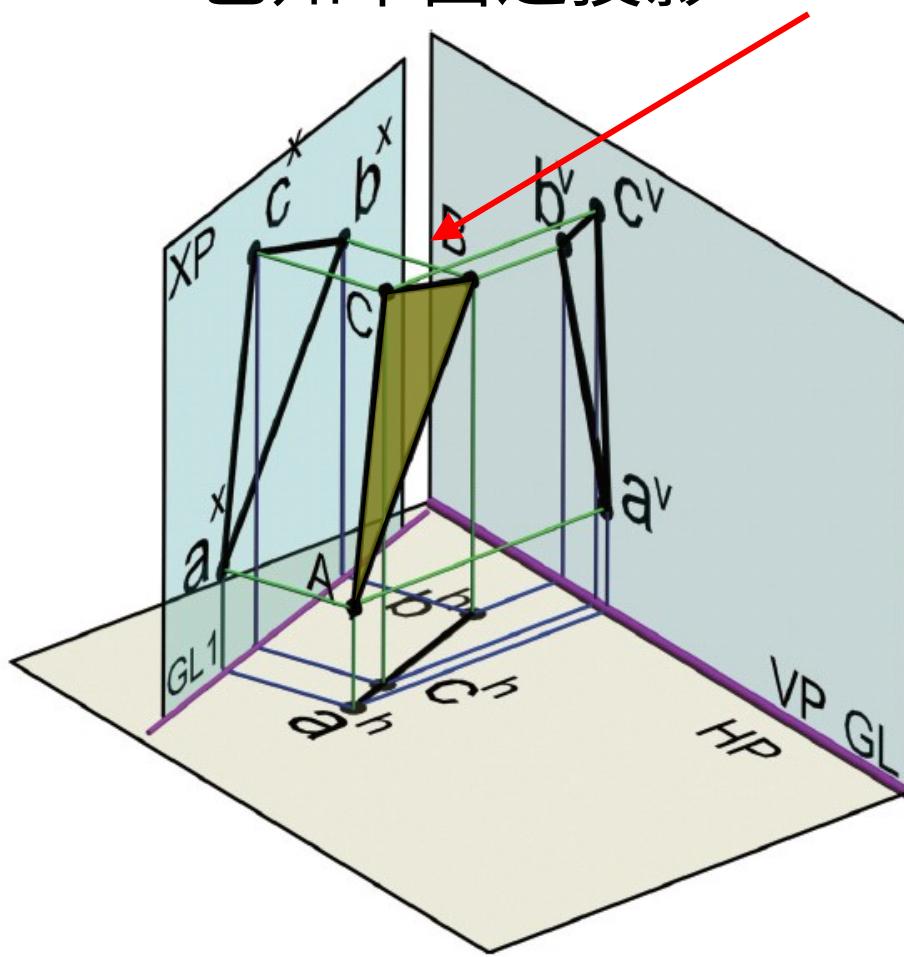
水平面及其投影



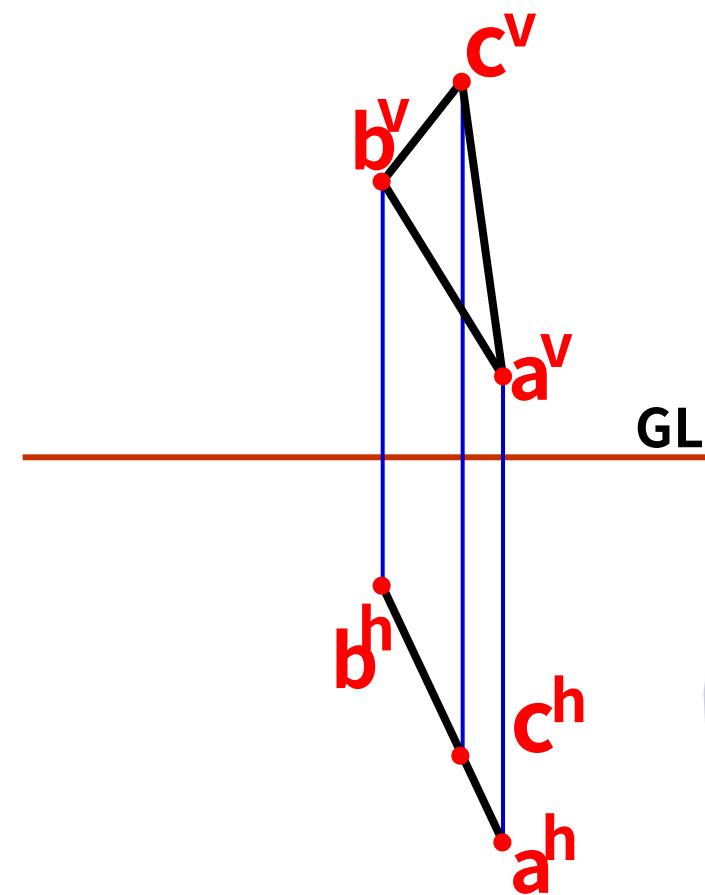
CAD圖

11.5 副投影法求單斜平面之實形 1/4

- 已知平面之投影。

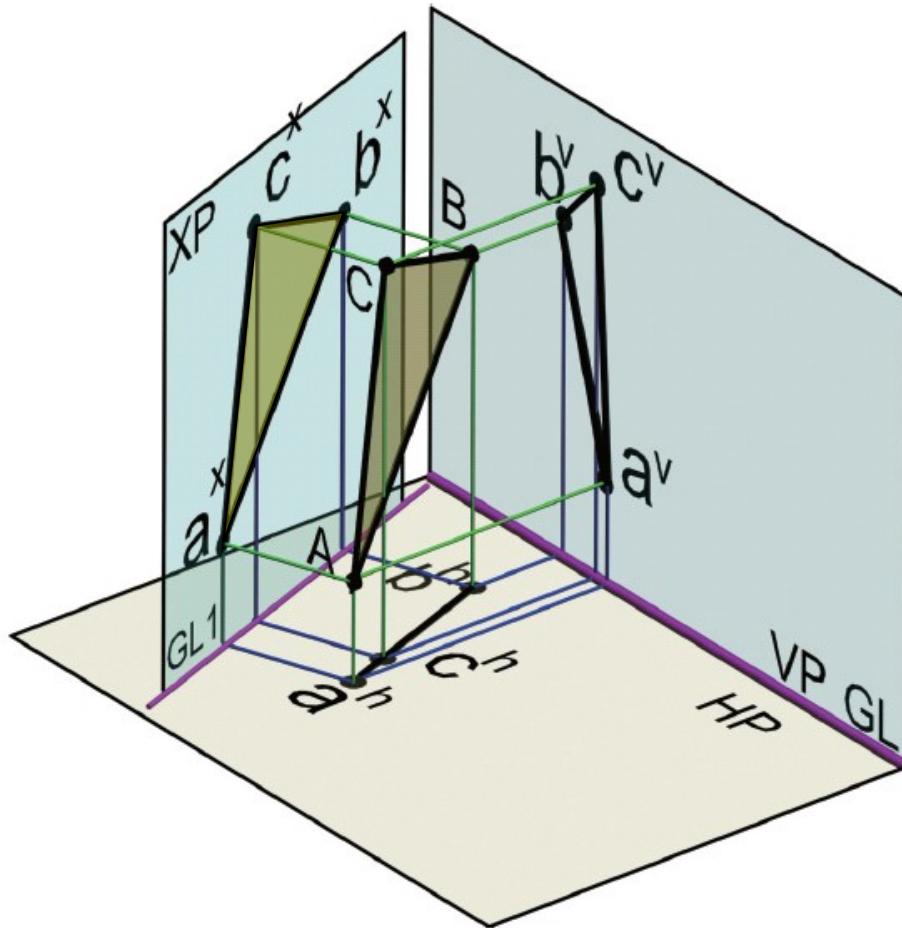


CAD圖 [CAD-AVI](#)

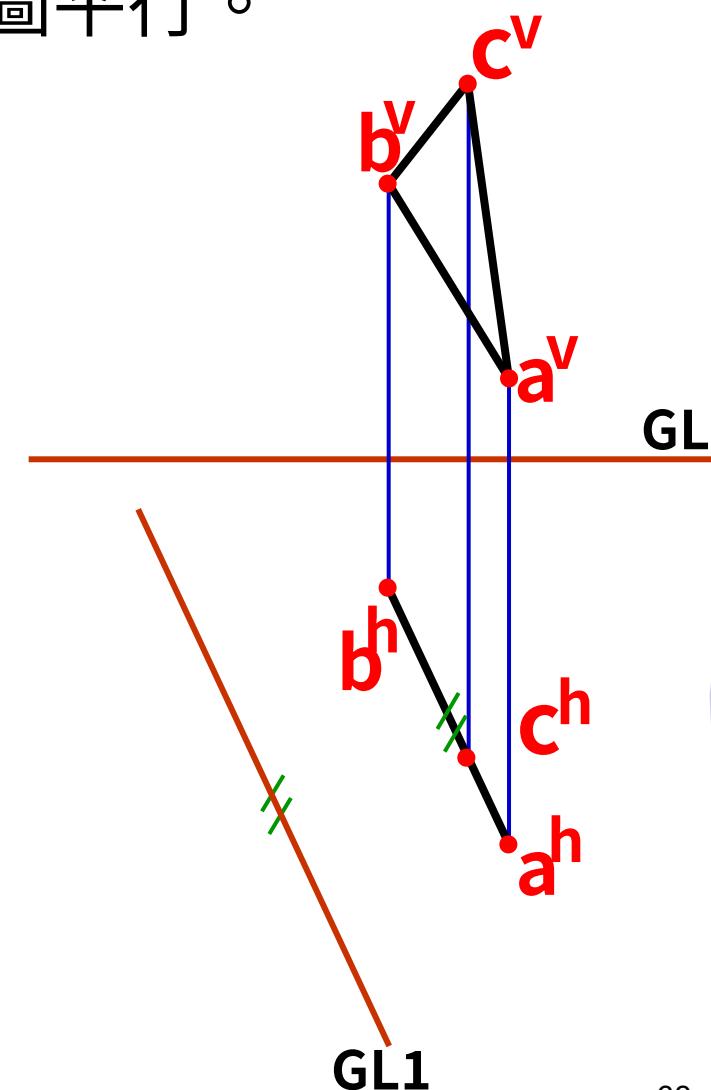


11.5 副投影法求單斜平面之實形 2/4

- 作第一副基線與平面之邊視圖平行。

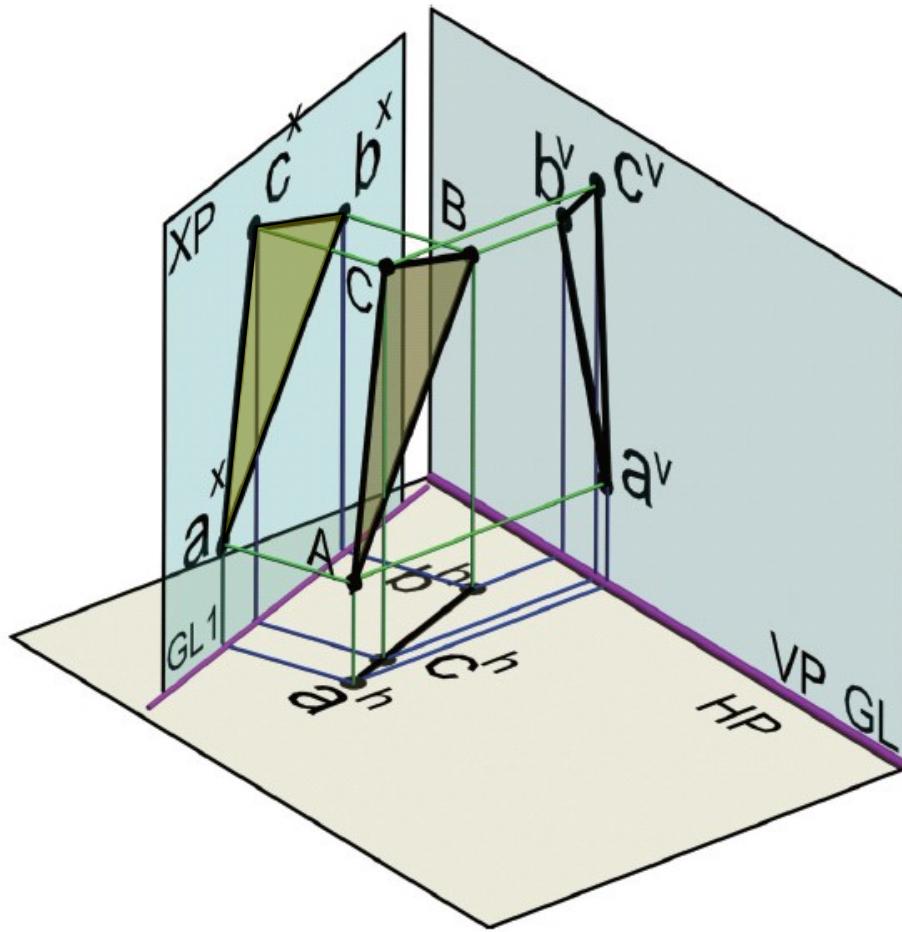


CAD圖 [CAD-AVI](#)

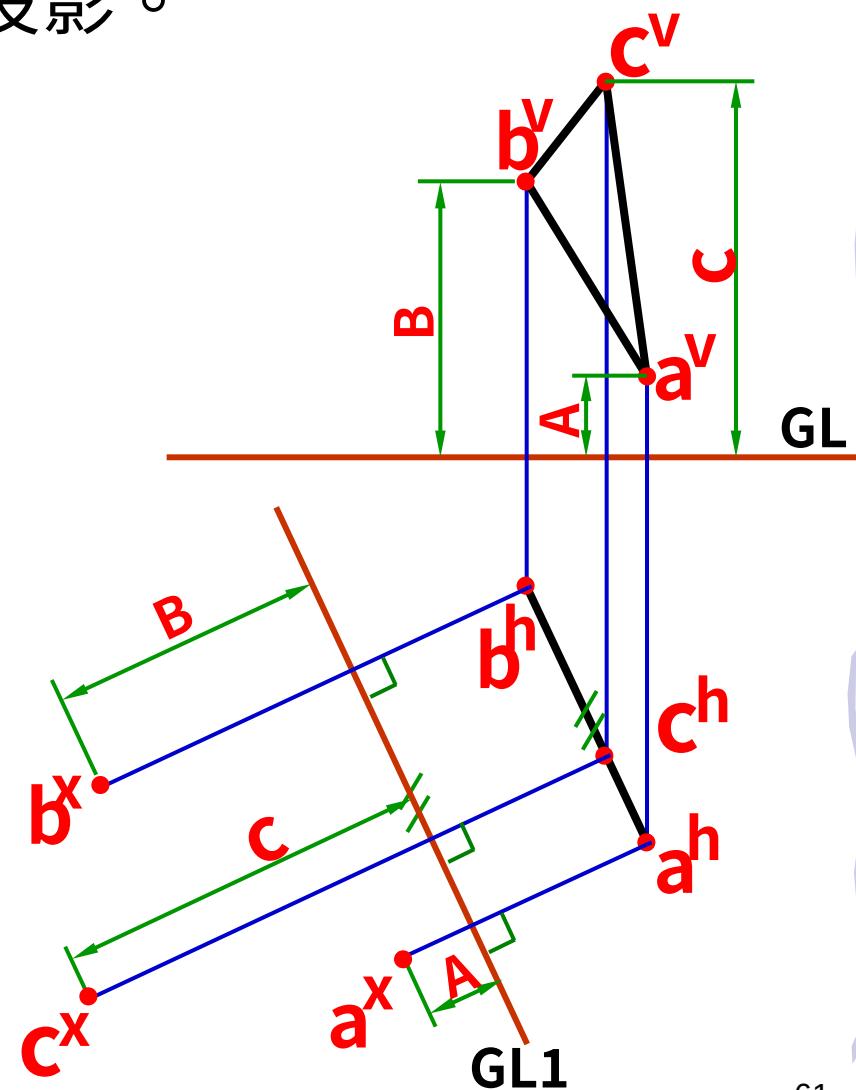


11.5 副投影法求單斜平面之實形 3/4

- 求單斜平面各端點之副投影。

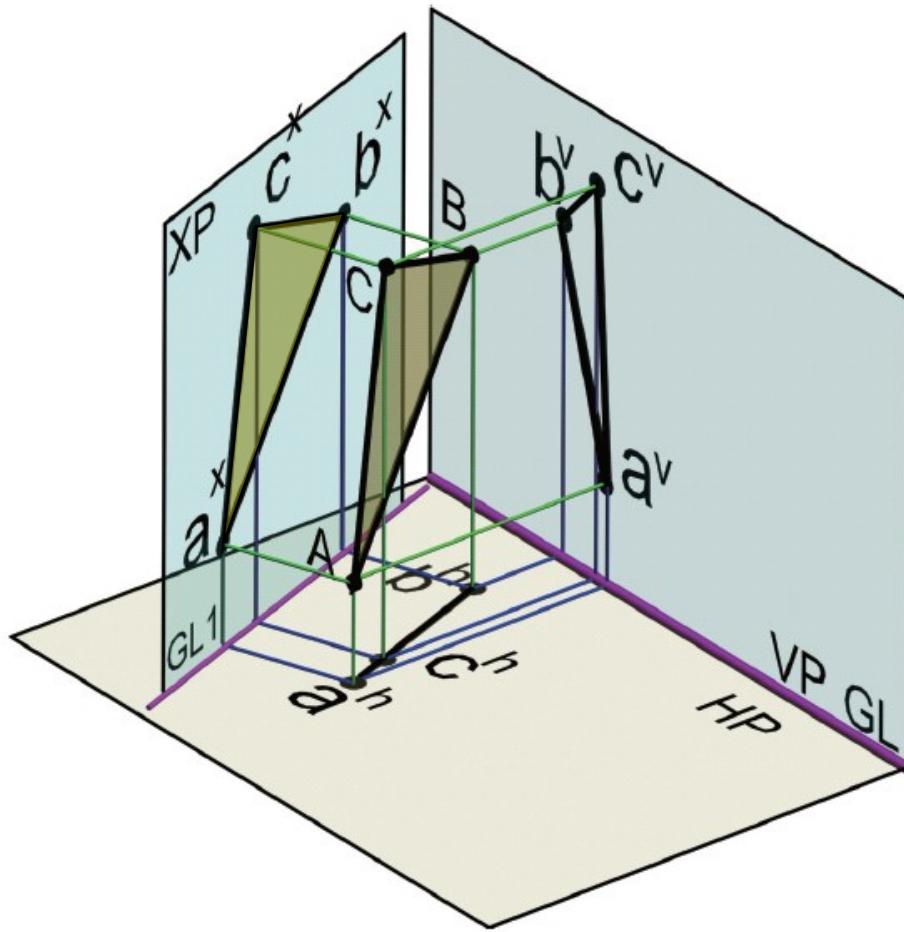


CAD圖 CAD-AVI



11.5 副投影法求單斜平面之實形 4/4

■ 得單斜平面之實形



CAD圖 [CAD-AVI](#)

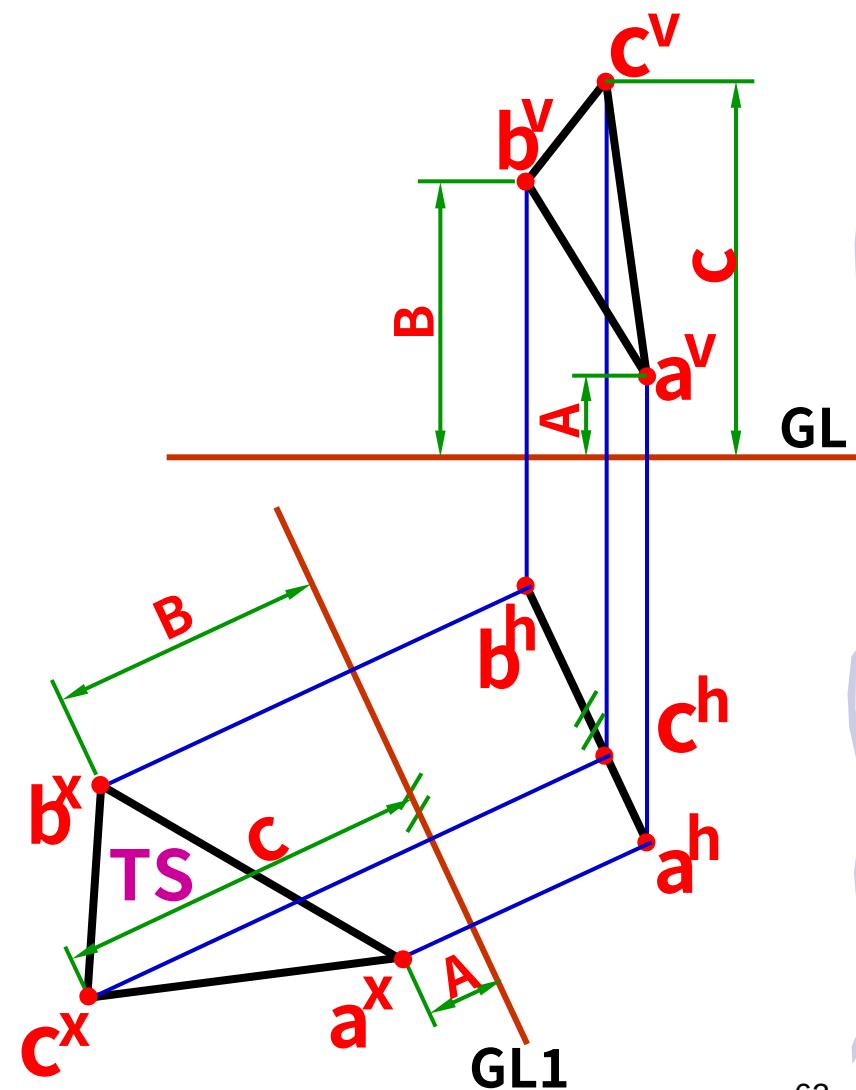
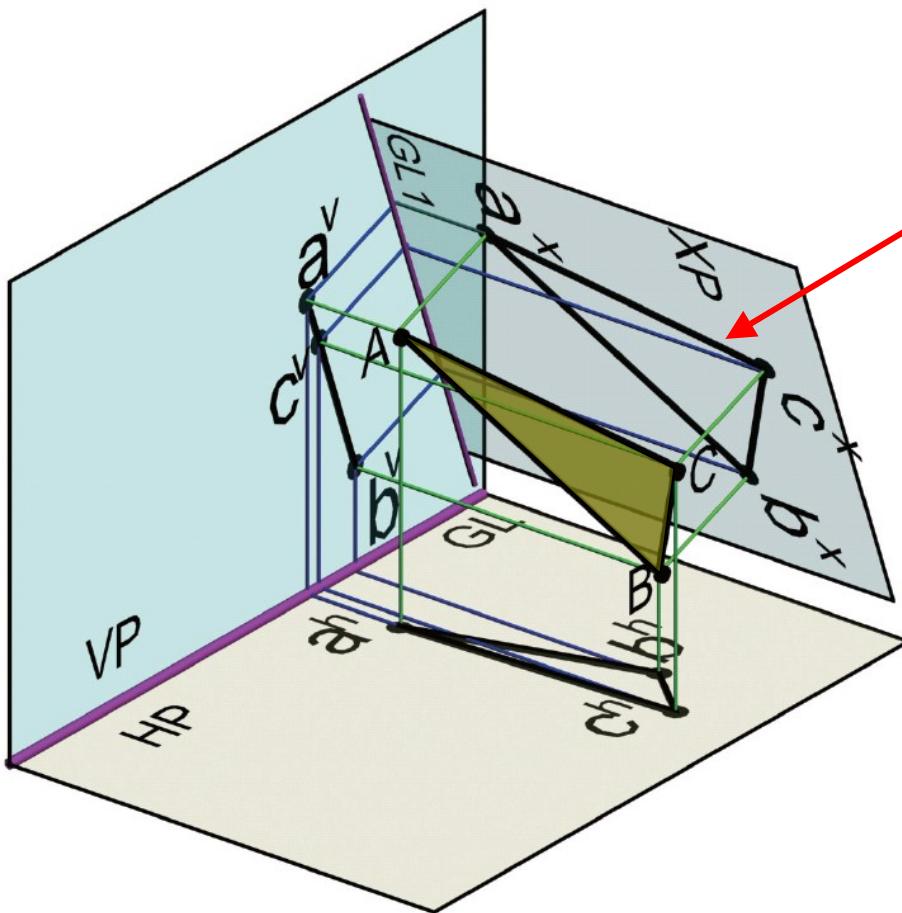


圖 11.8 副投影法求單斜平面之實形二 1/4

副投影面與直立投影面垂直法



CAD圖 CAD-AVI

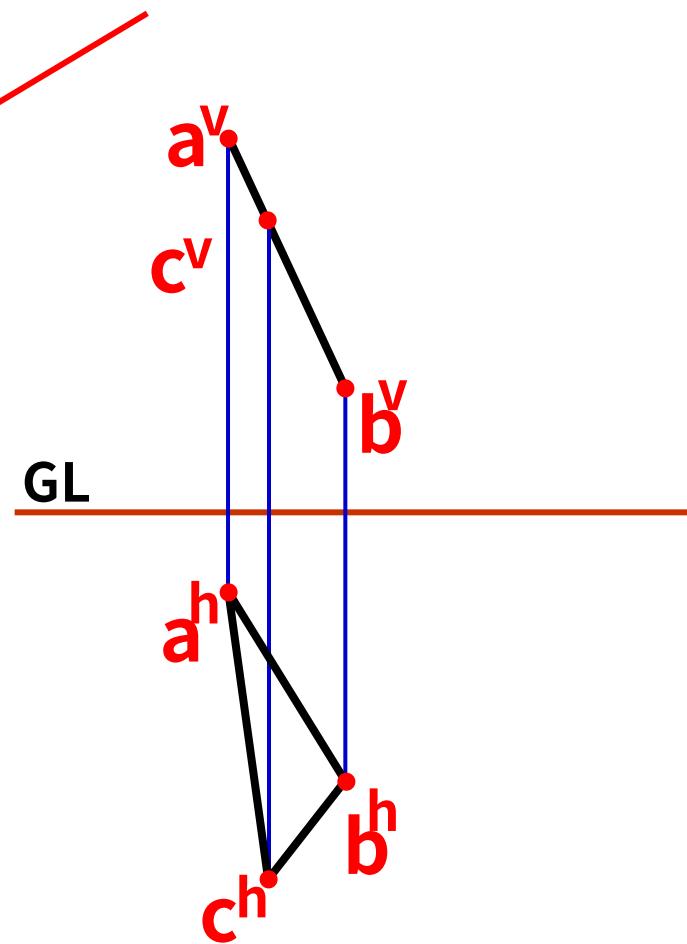
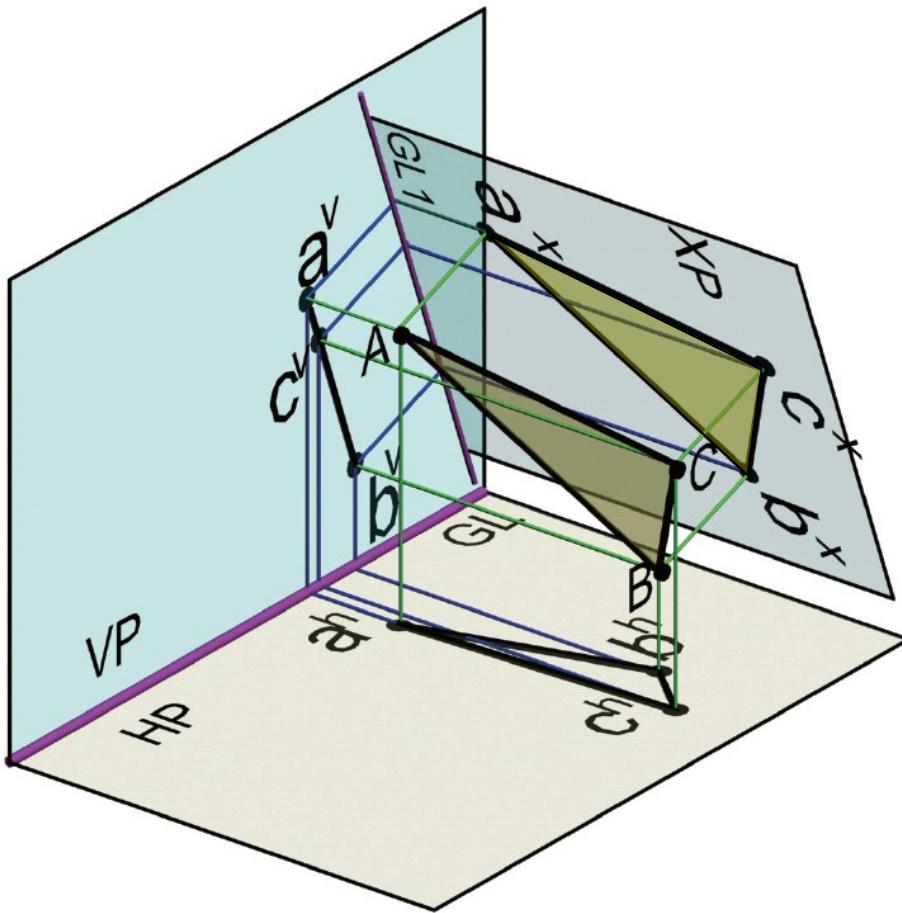


圖 11.8 副投影法求單斜平面之實形二 2/4

- 作第一副基線與平面之邊視圖平行。



CAD圖 CAD-AVI

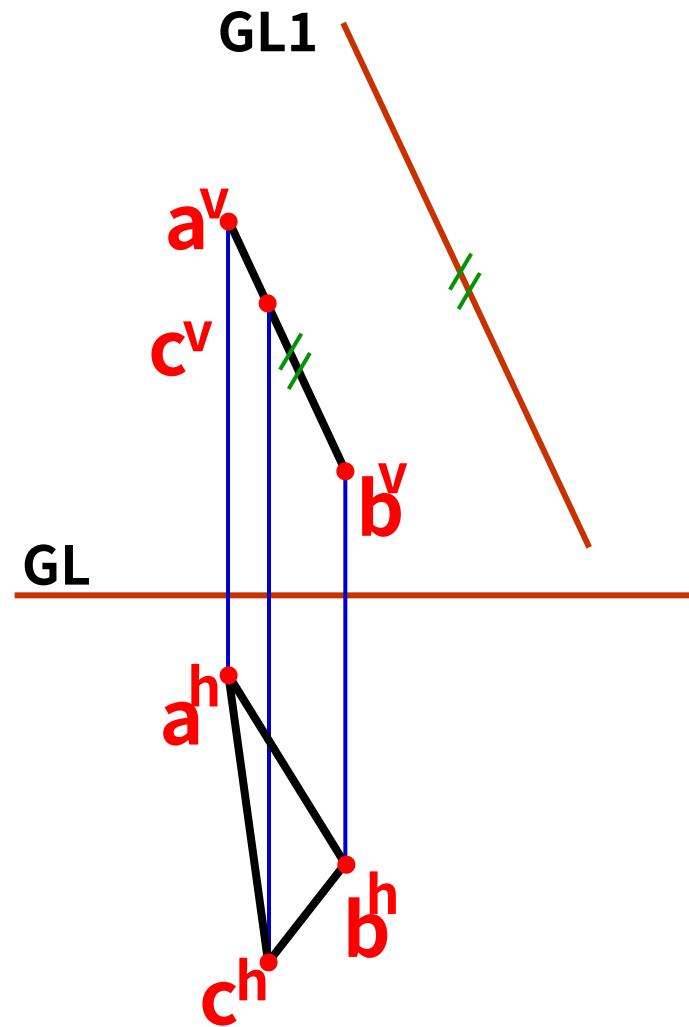
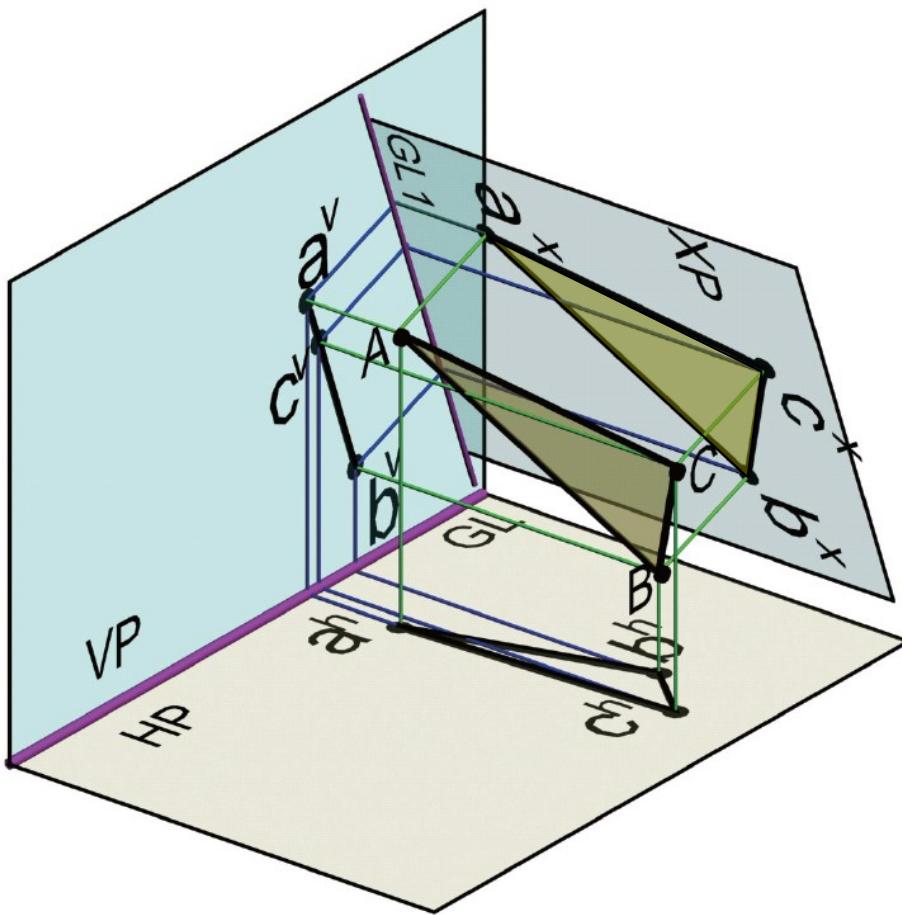


圖 11.8 副投影法求單斜平面之實形二 3/4

- 求單斜平面各端點之副投影



CAD圖 CAD-AVI

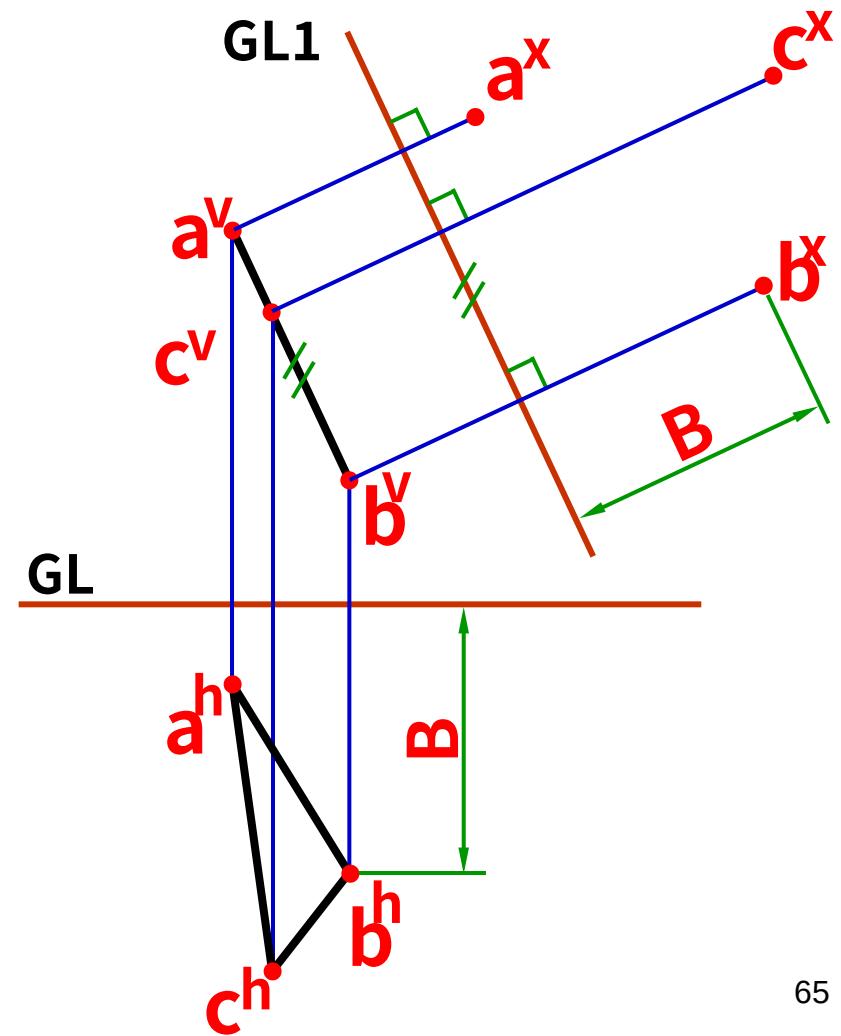
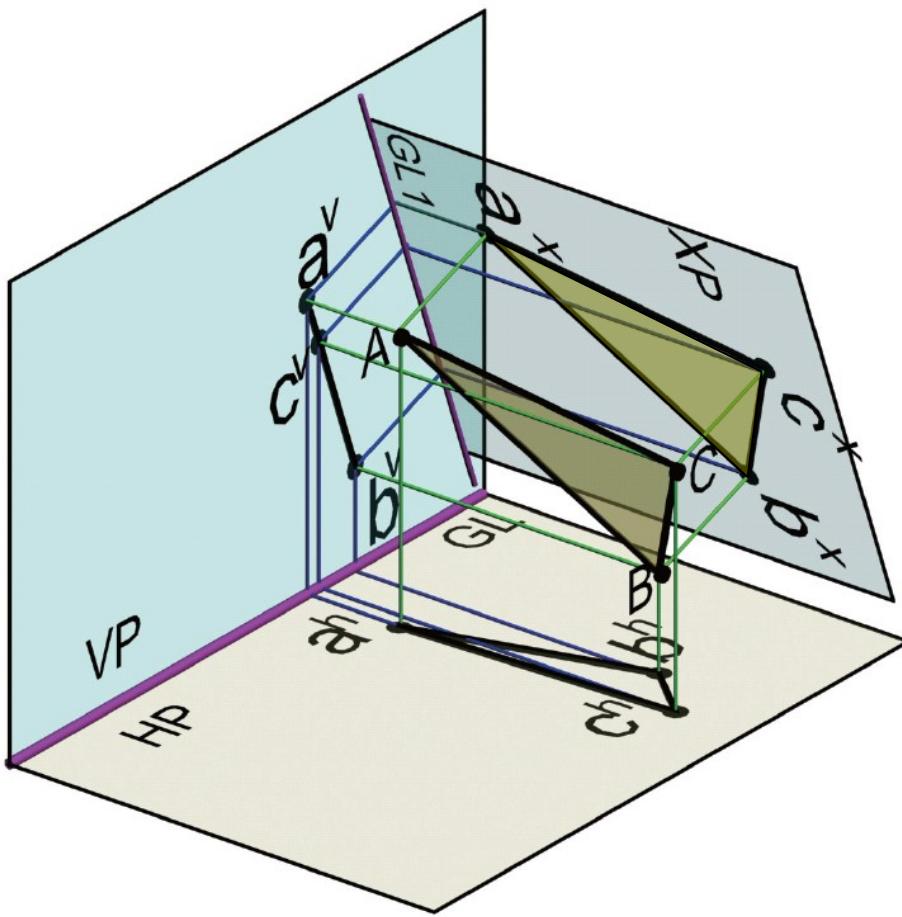
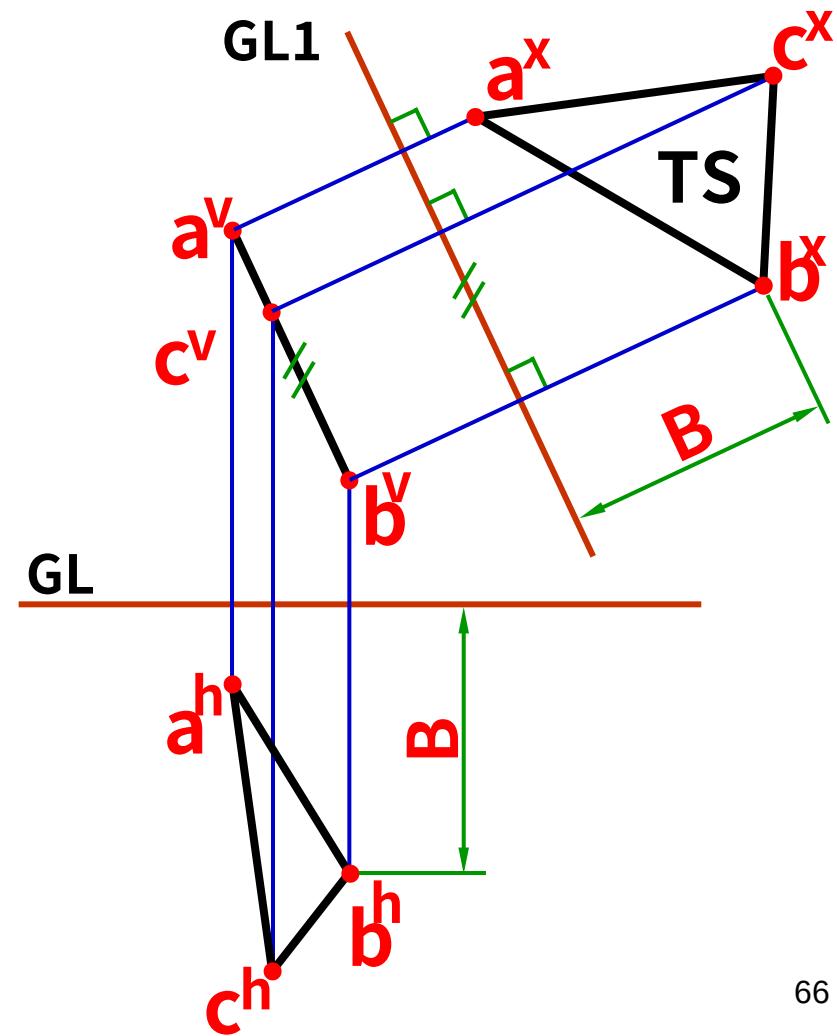


圖 11.8 副投影法求單斜平面之實形二 4/4

- 得單斜平面之實形

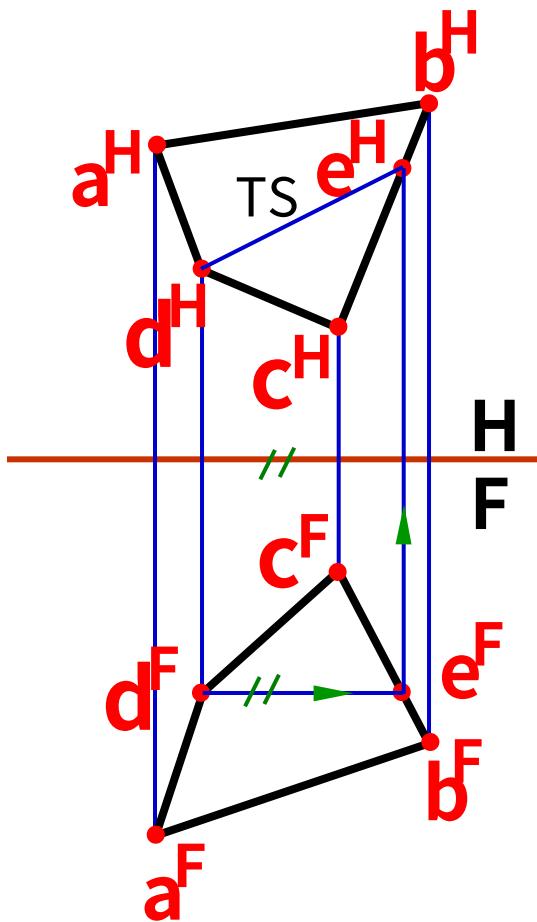


CAD圖 CAD-AVI



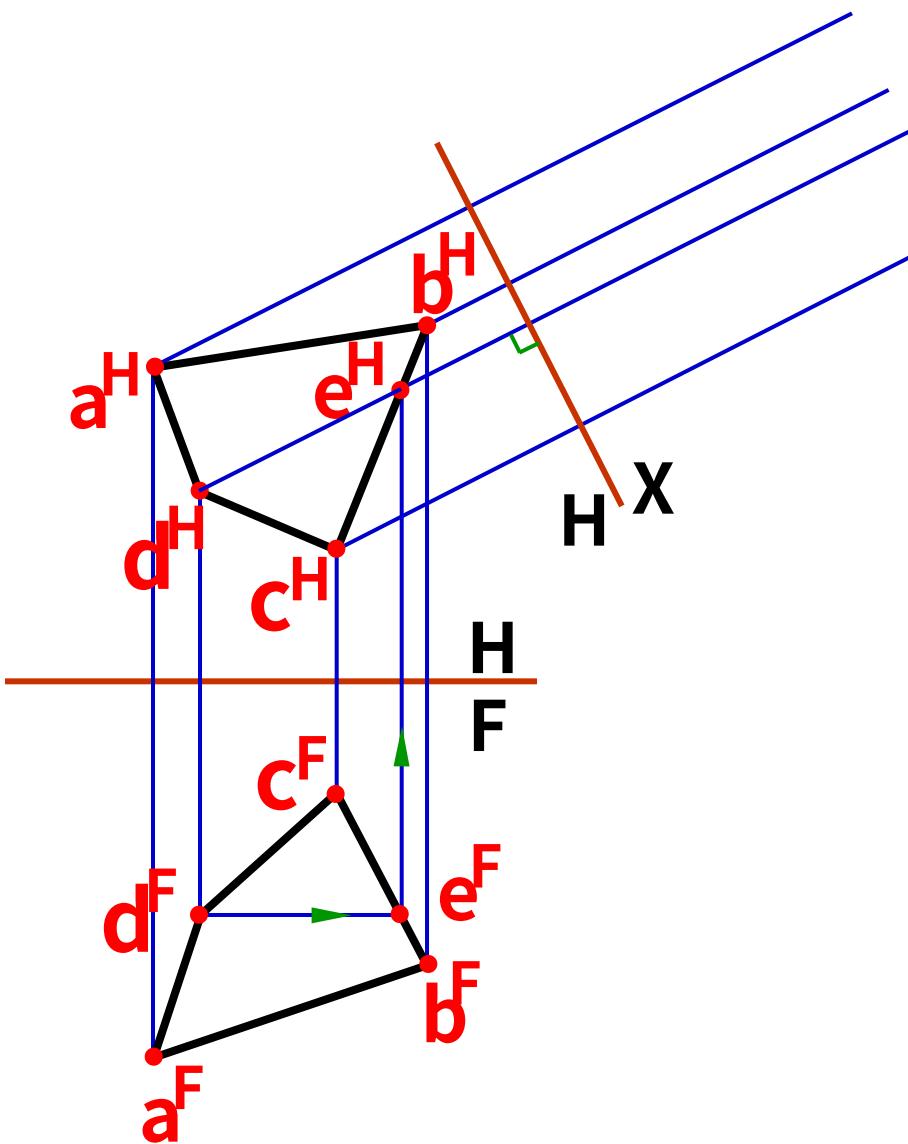
副投影法求複斜平面之邊視圖

1/4



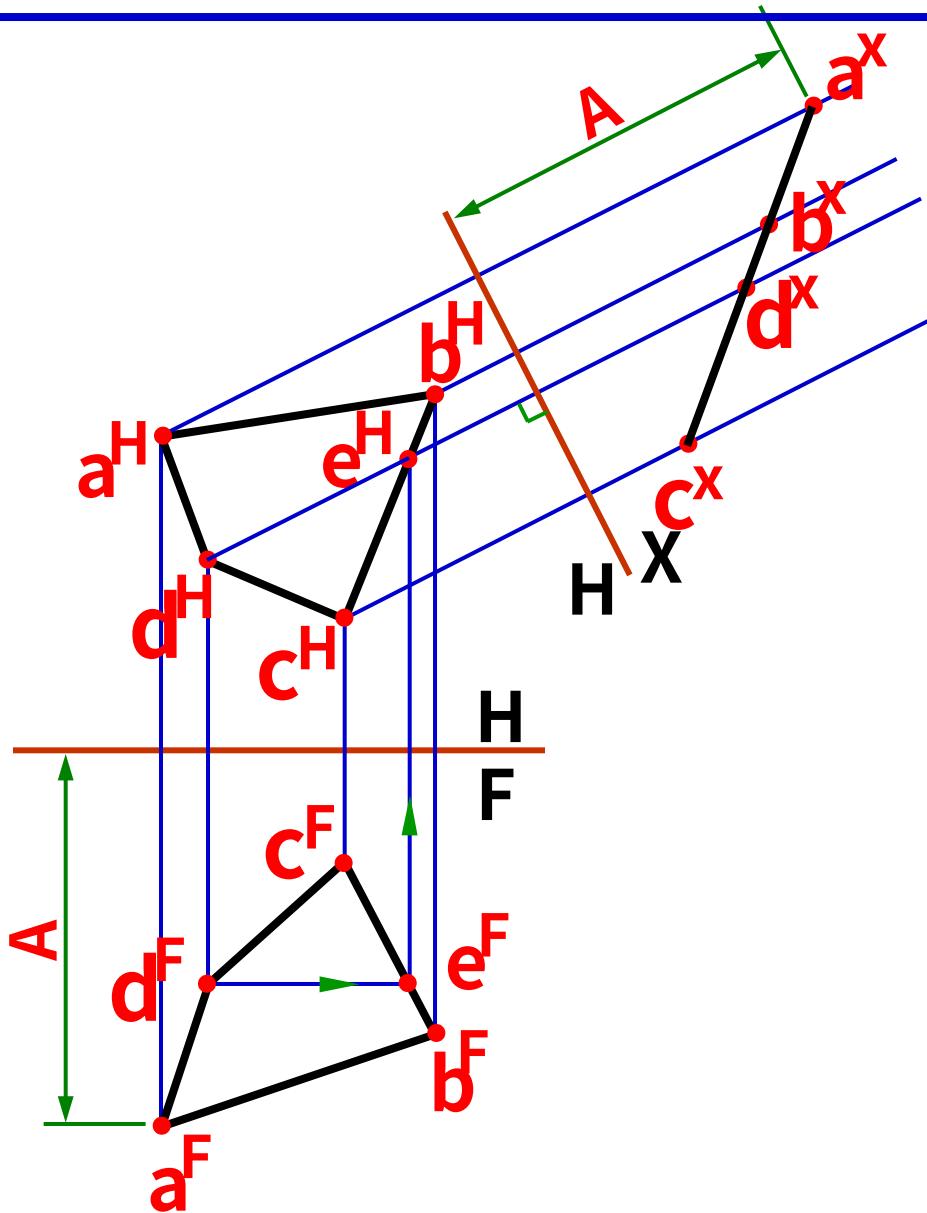
副投影法求複斜平面之邊視圖

2/4



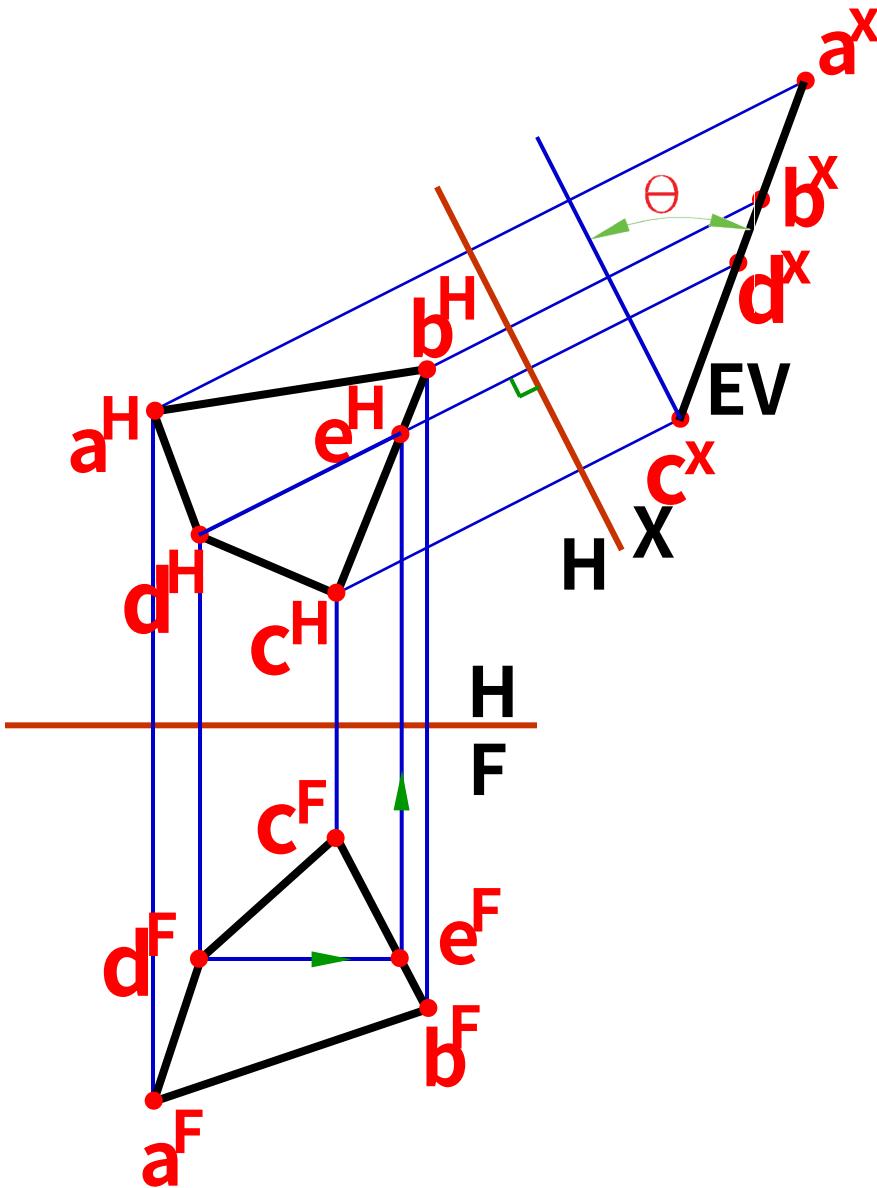
副投影法求複斜平面之邊視圖

3/4



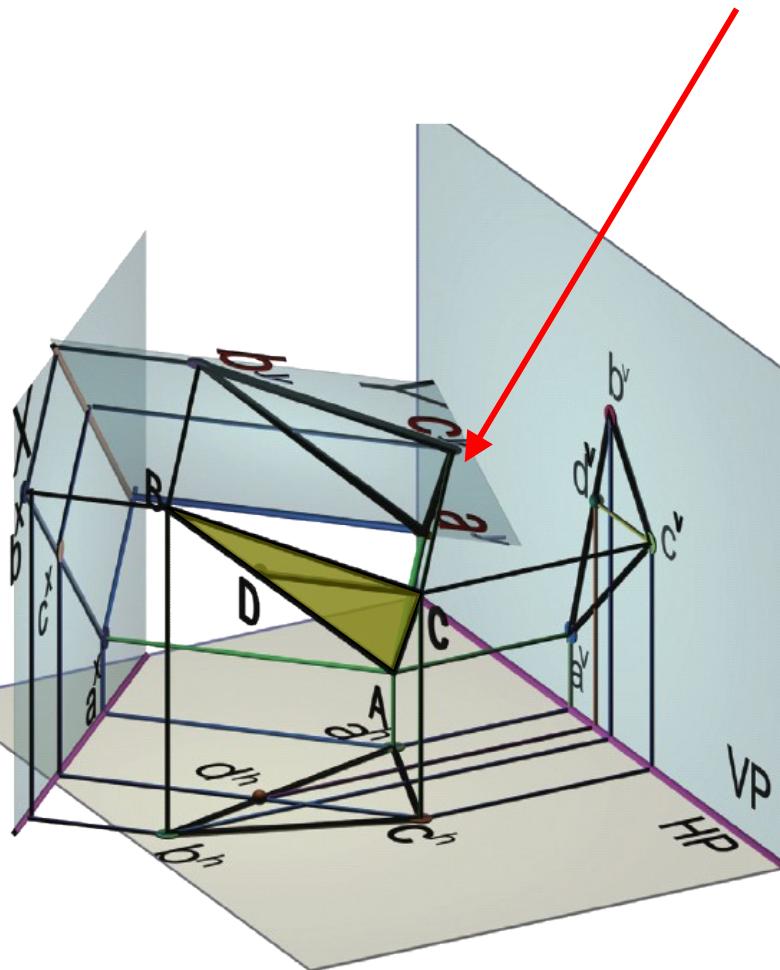
副投影法求複斜平面之邊視圖

4/4

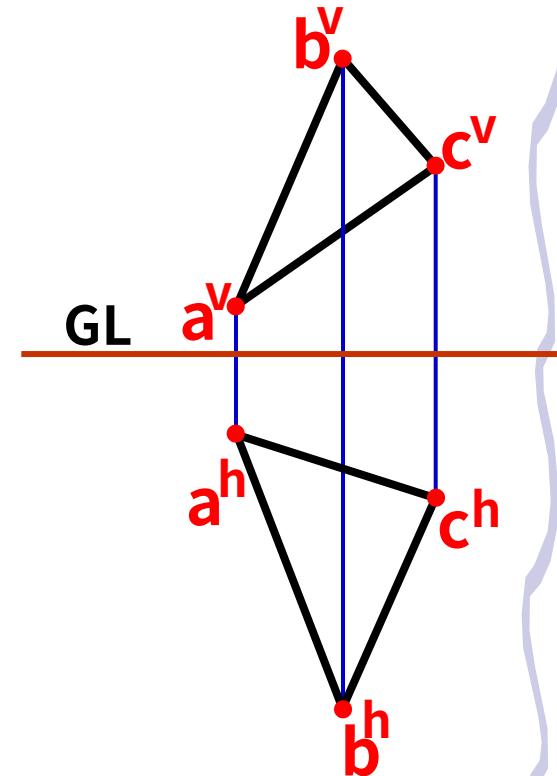


11.6 副投影法求複斜平面之實形 1/4

■ 已知平面之投影

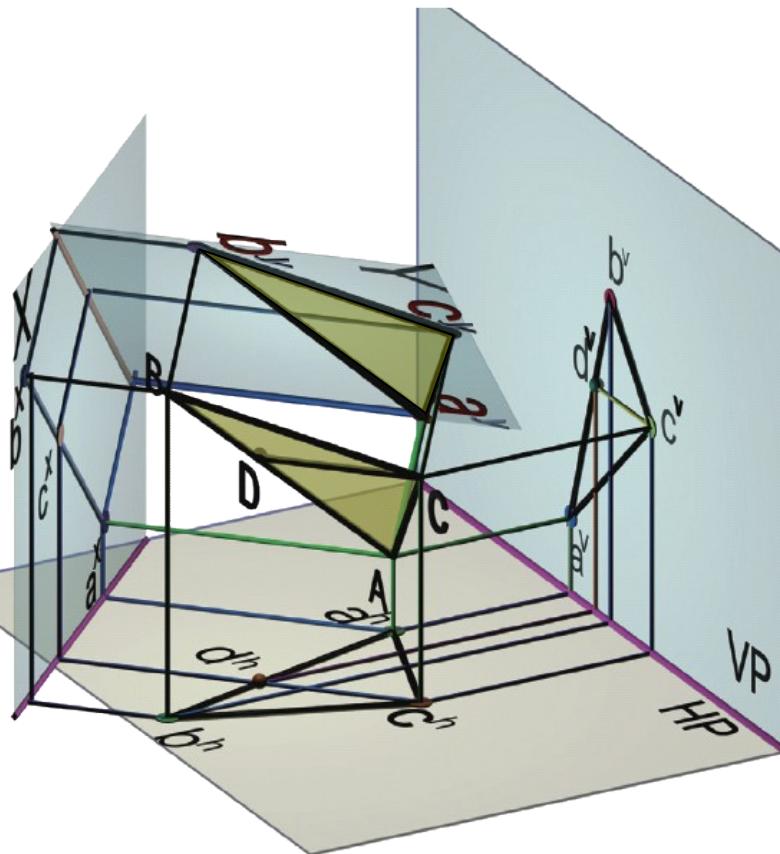


CAD圖 [CAD-AVI](#)

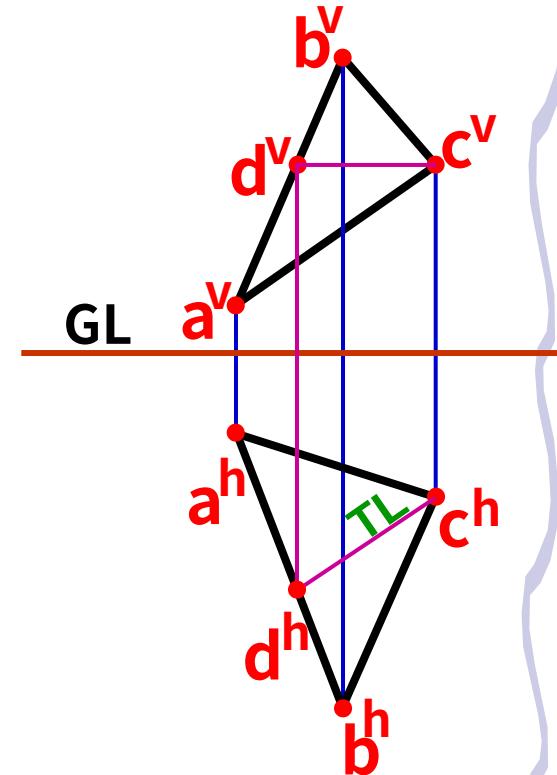


11.6 副投影法求複斜平面之實形 2/4

- 過 c^v 作水平線，與 a^vb^v 交於 d^v ，過 d^v 作垂線交 b^hc^h 於 d^h ，則 CD 之水平線投影 c^hd^h 呈現實長。

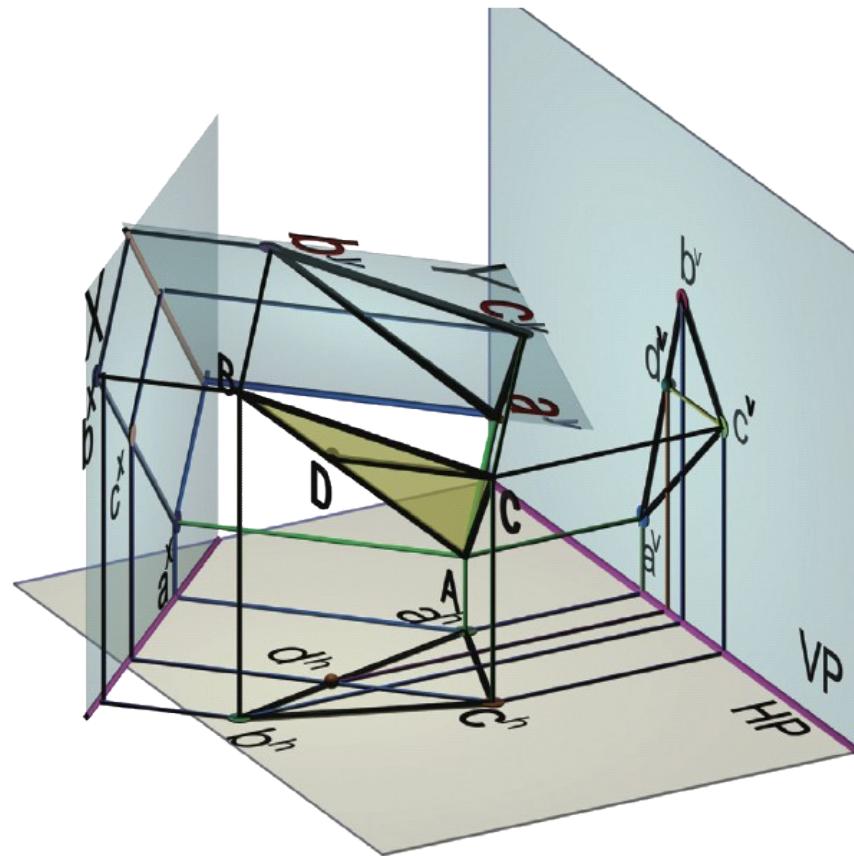


CAD圖 [CAD-AVI](#)

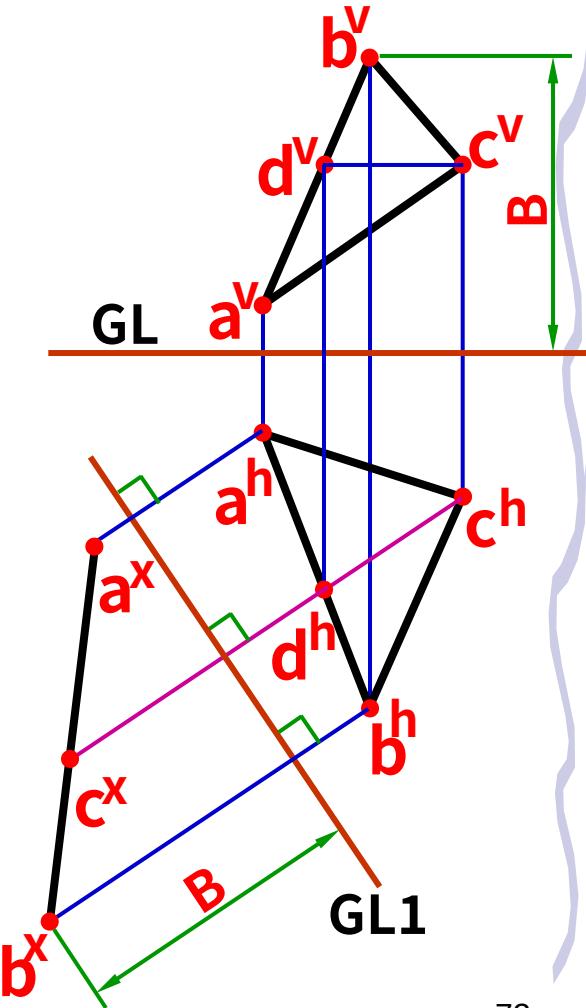


11.6 副投影法求複斜平面之實形 3/4

- 作副基線 GL_1 與 c^{hdh} 之延長線垂直，過水平投影各點向 GL_1 作垂線，求作各點之第一副投影，得平面之邊視圖 $a \times b \times c \times$

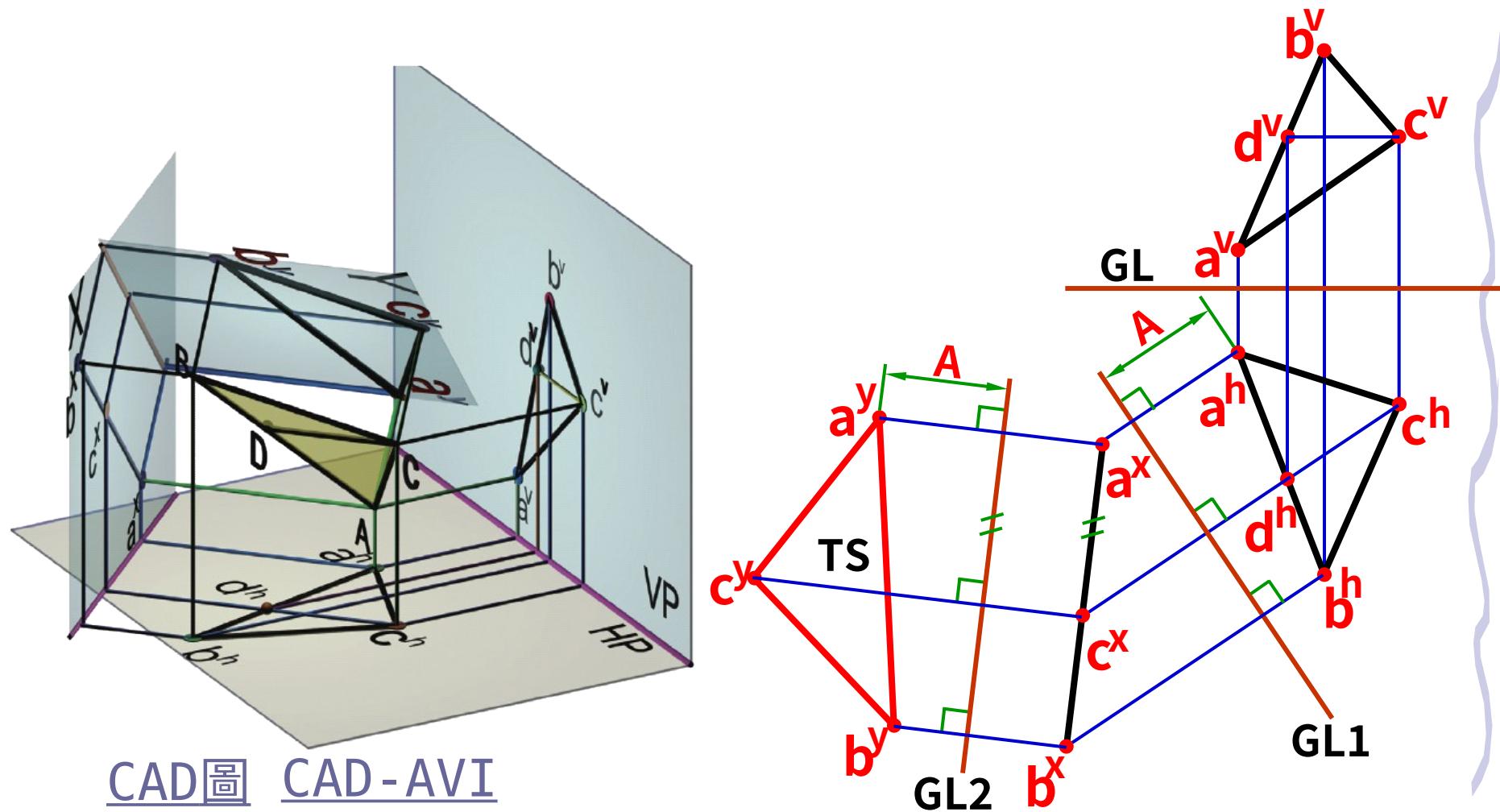


CAD圖 [CAD-AVI](#)

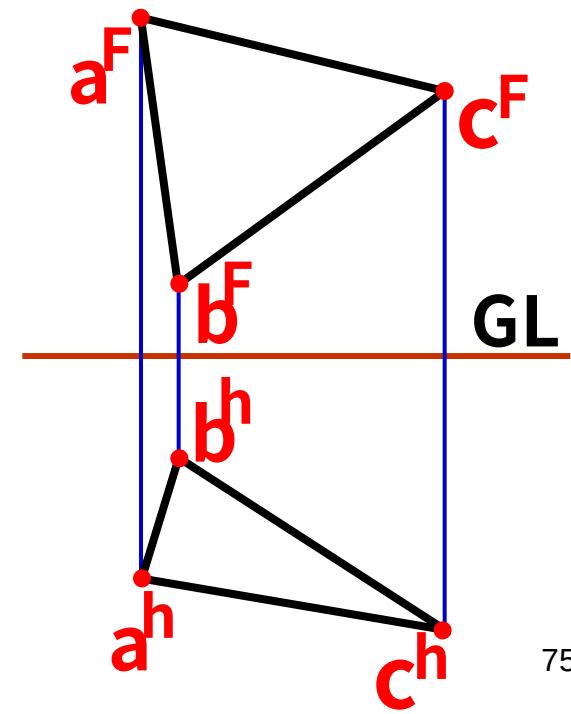


11.6 副投影法求複斜平面之實形 4/4

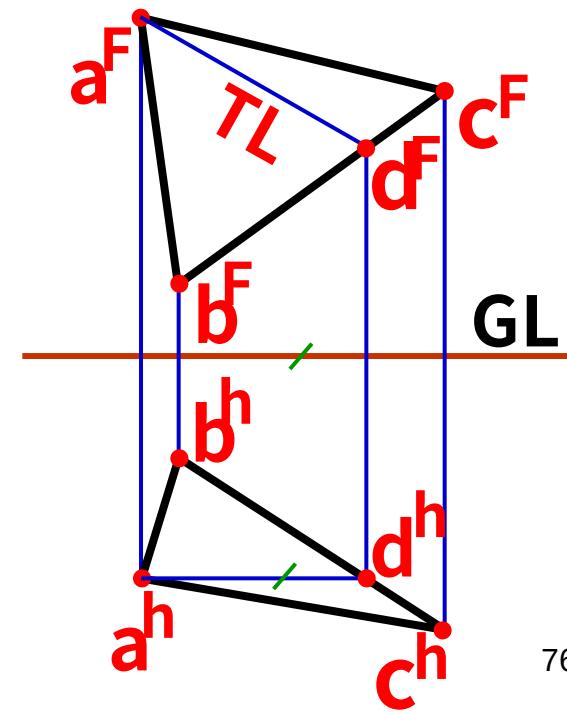
- 作副基線 GL_2 與 $a \times b \times c \times$ 平行，分別作 A，B，C 三點之第二副投影，連接各點得平面 ABC 第二副投影 $a_y b_y c_y$ ，即得其實形。



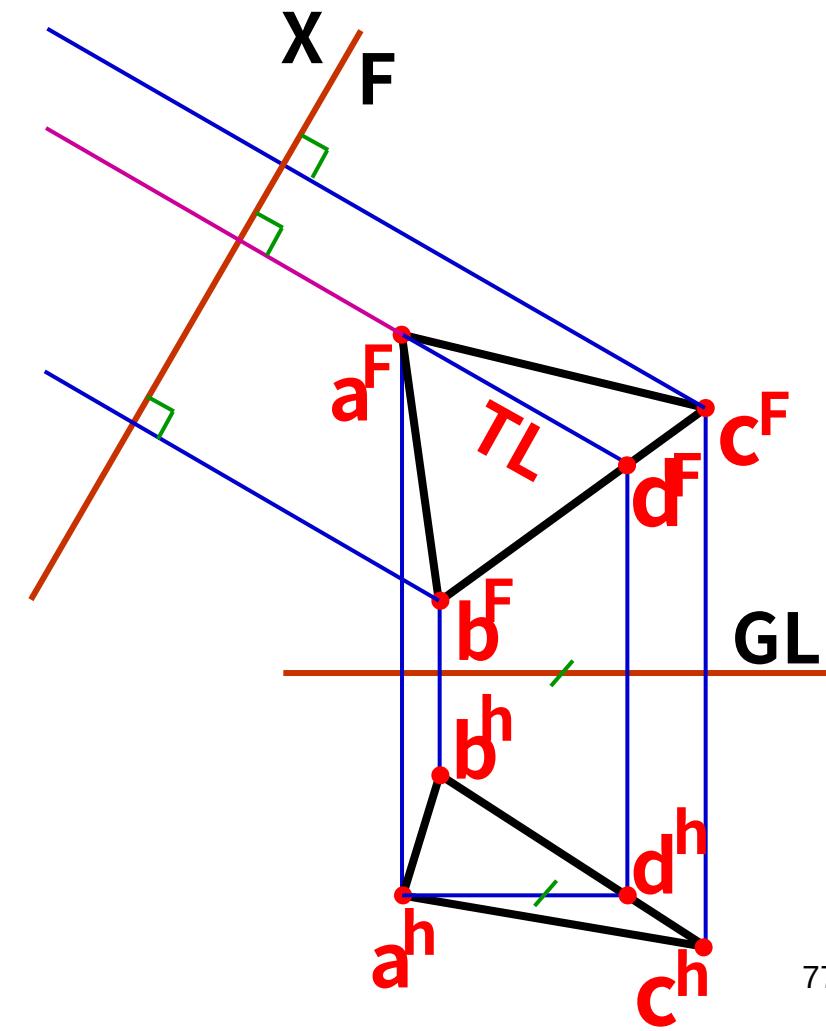
副投影法求複斜平面之實形例題 1/7



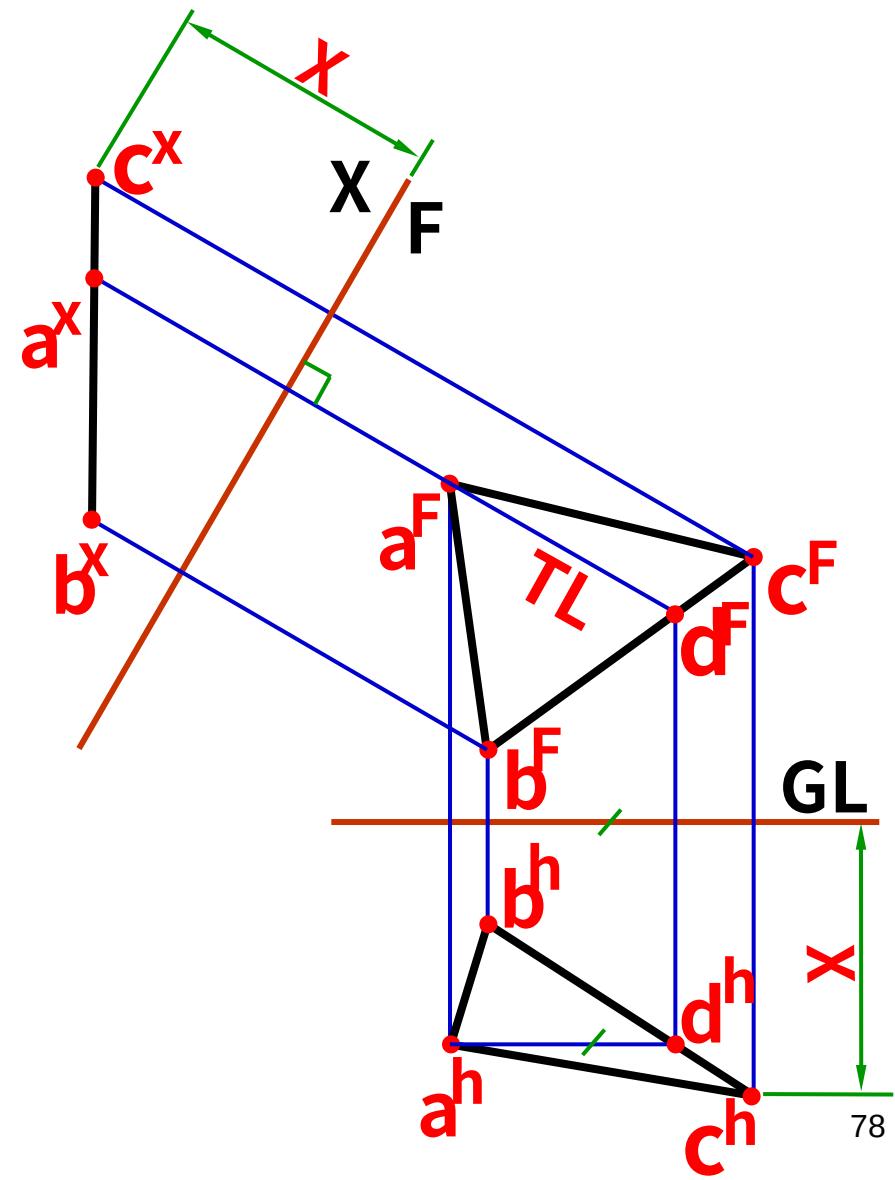
副投影法求複斜平面之實形例題 2/7



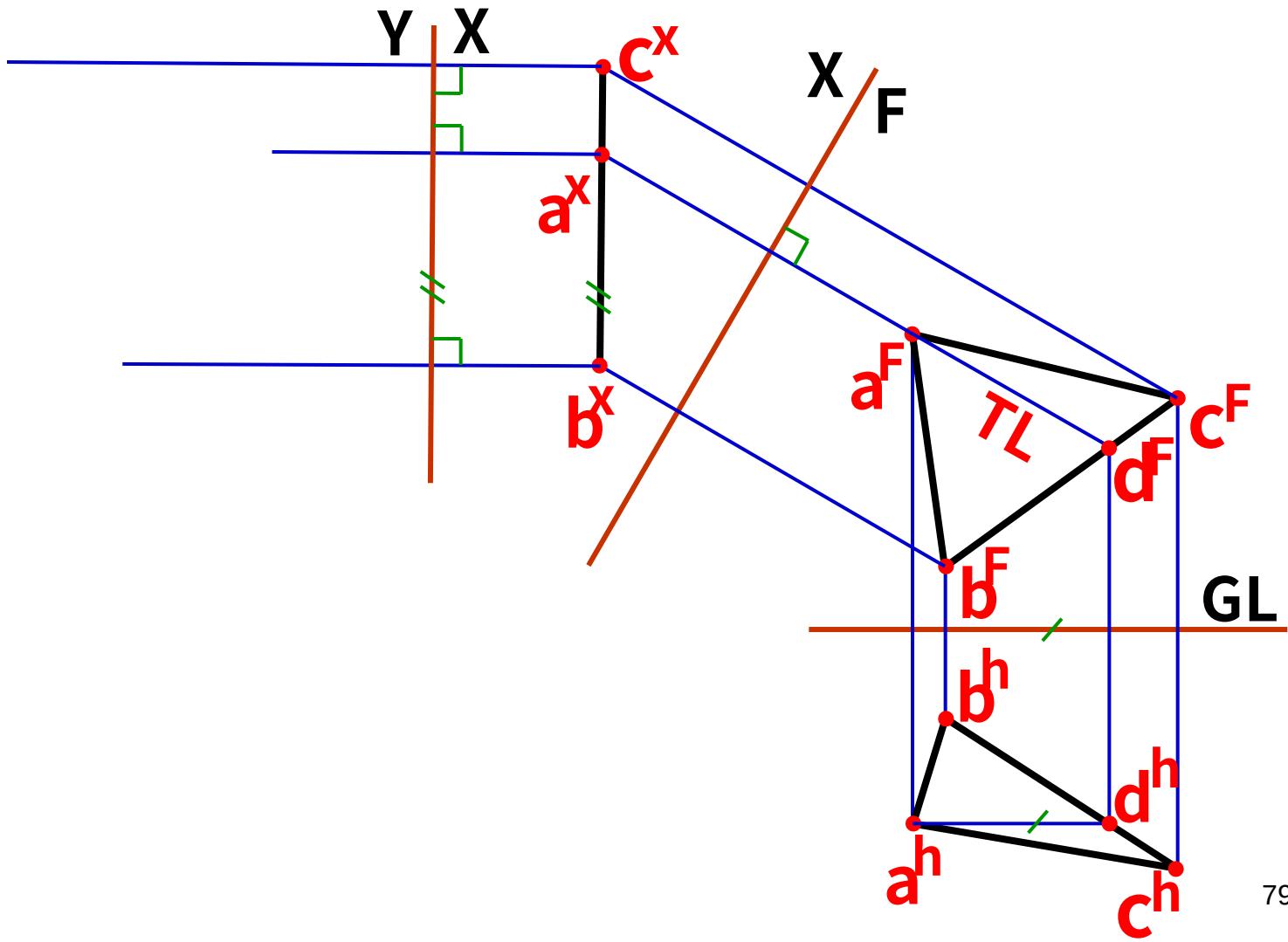
副投影法求複斜平面之實形例題 3/7



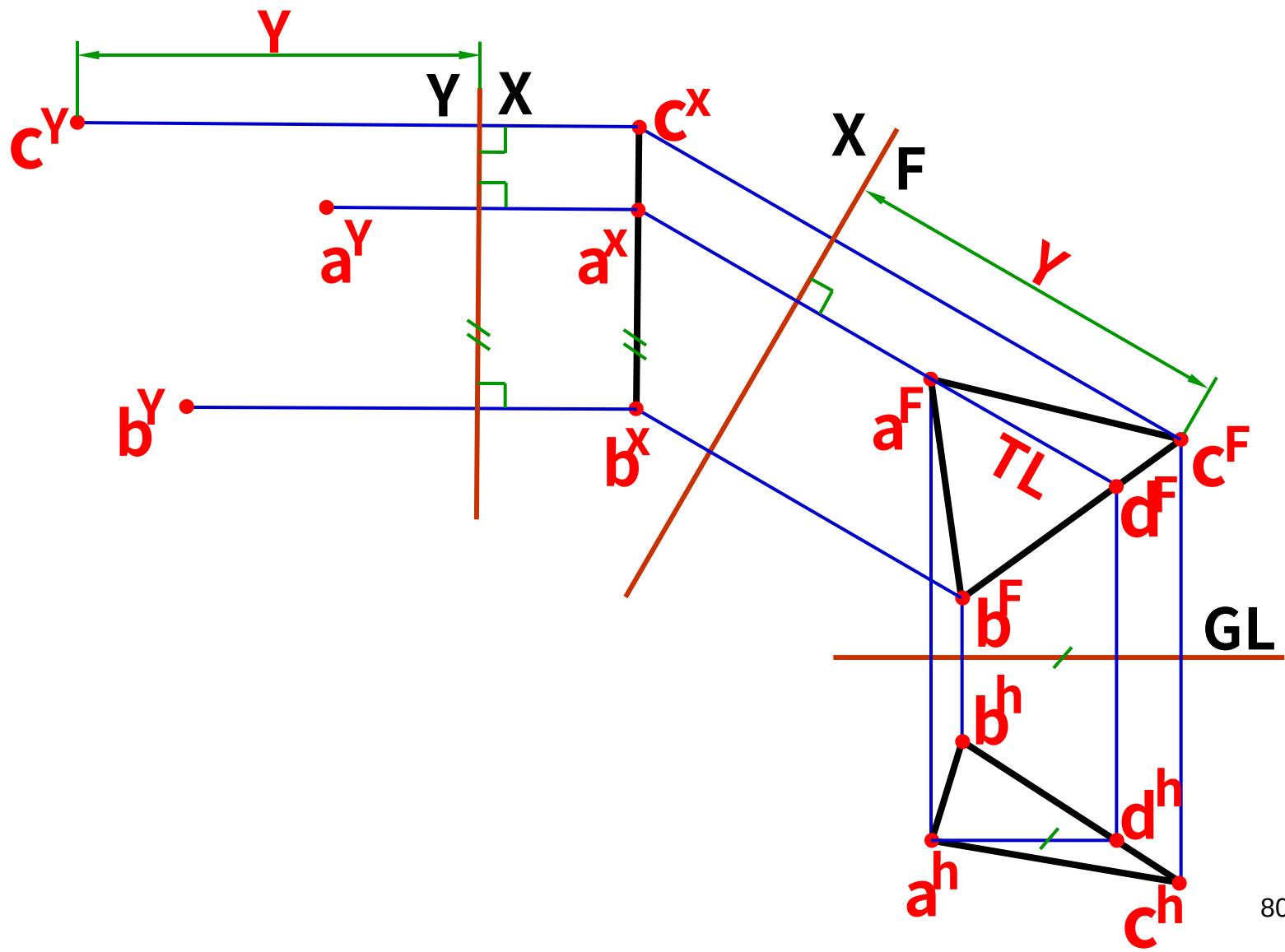
副投影法求複斜平面之實形例題 4/7



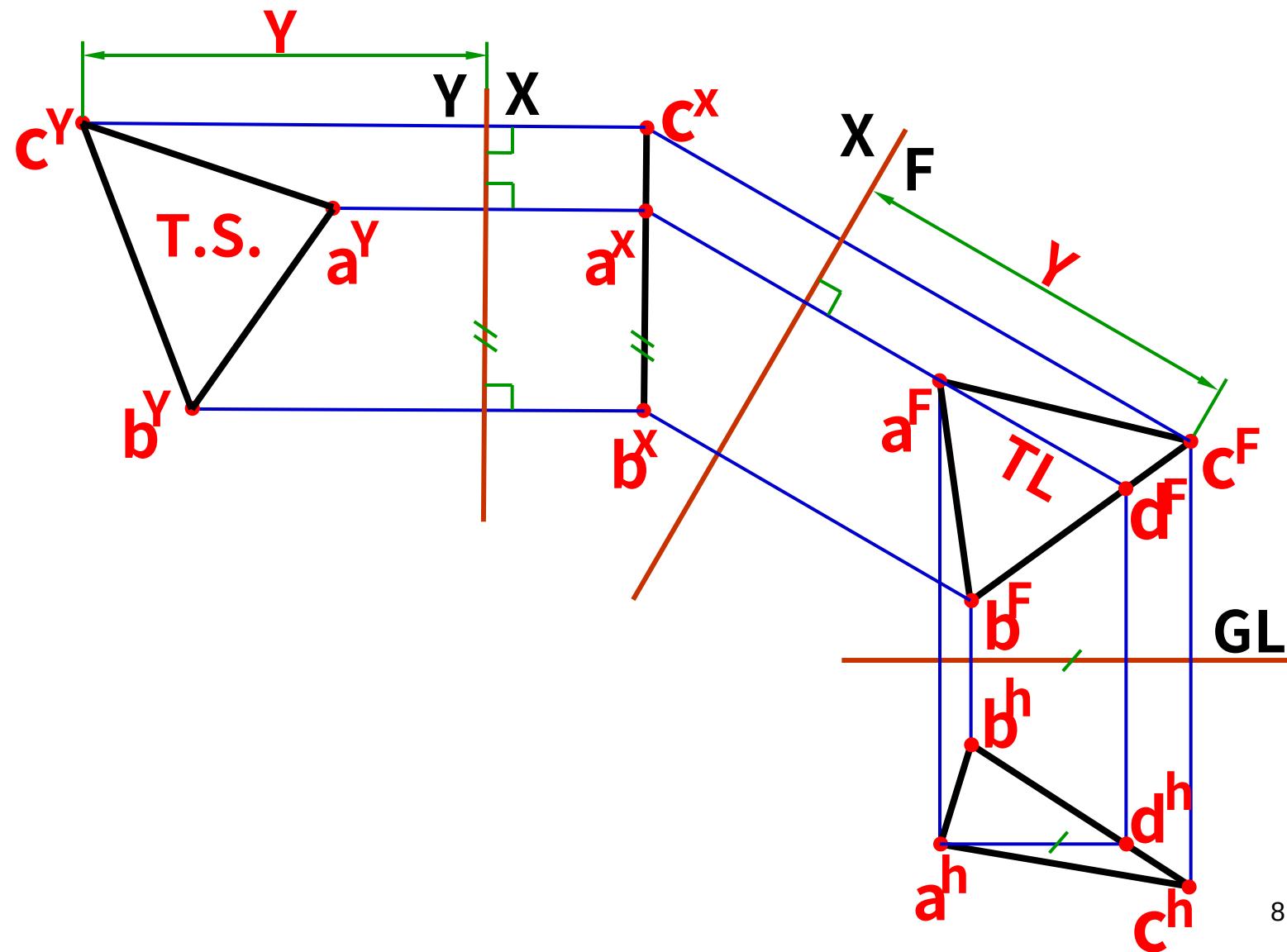
副投影法求複斜平面之實形例題 5/7



副投影法求複斜平面之實形例題 6/7

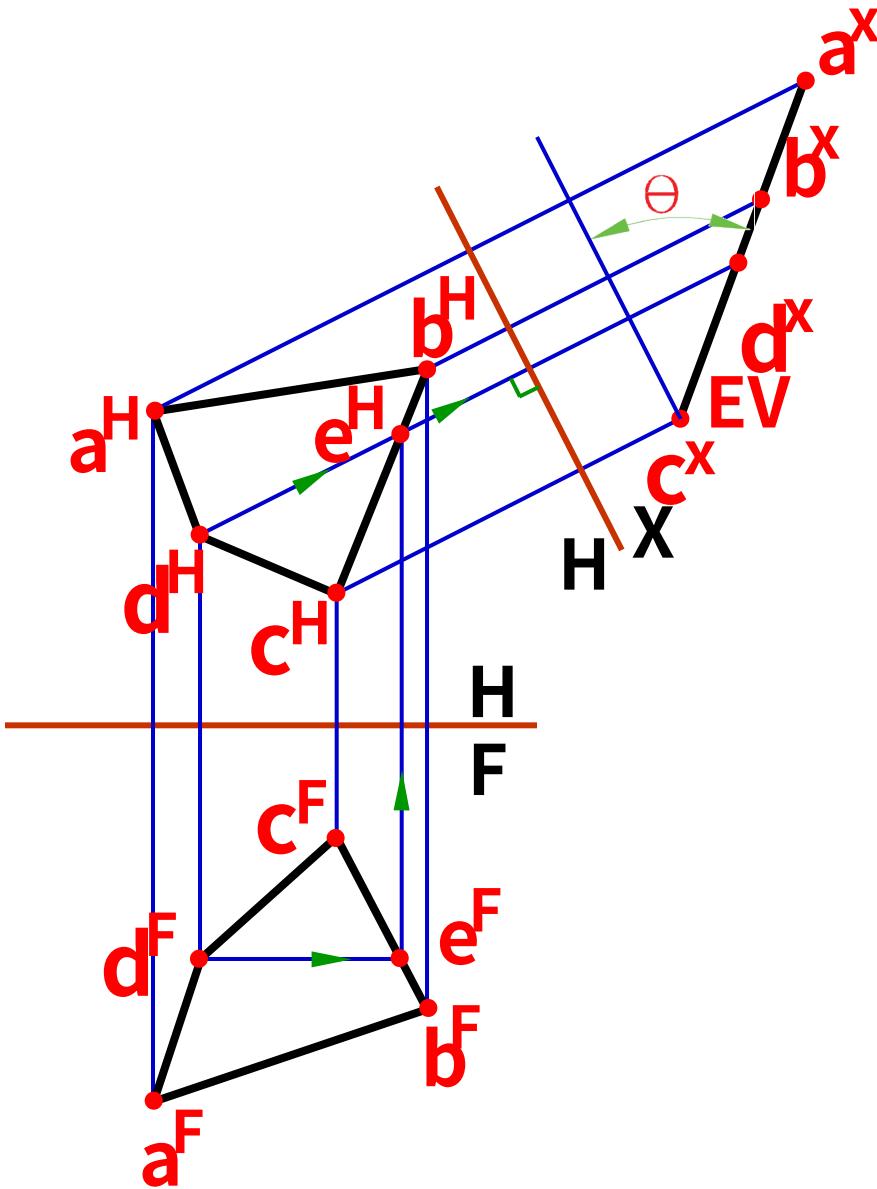


副投影法求複斜平面之實形例題 7/7



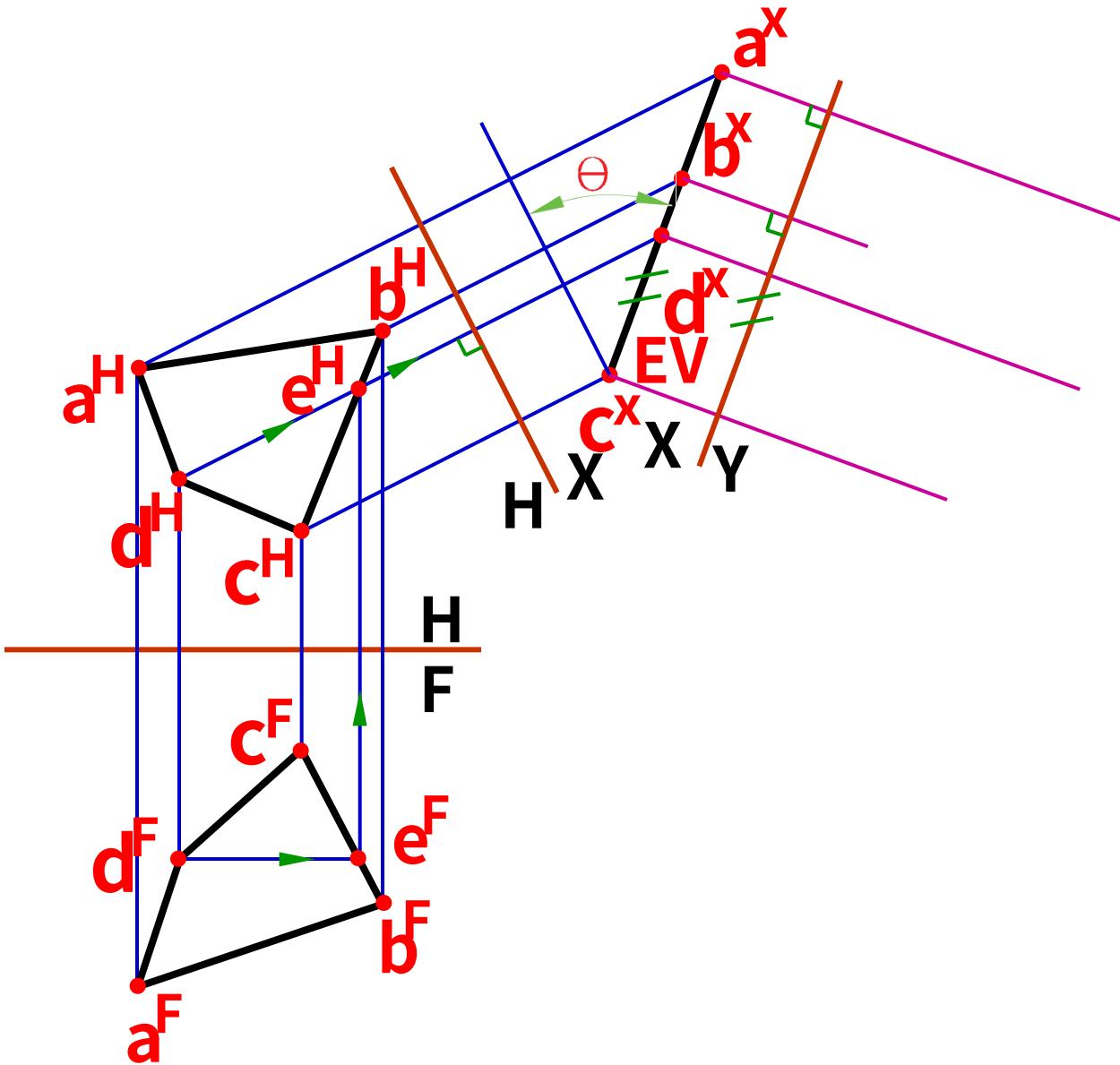
副投影法求複斜平面之實形例二

1/4



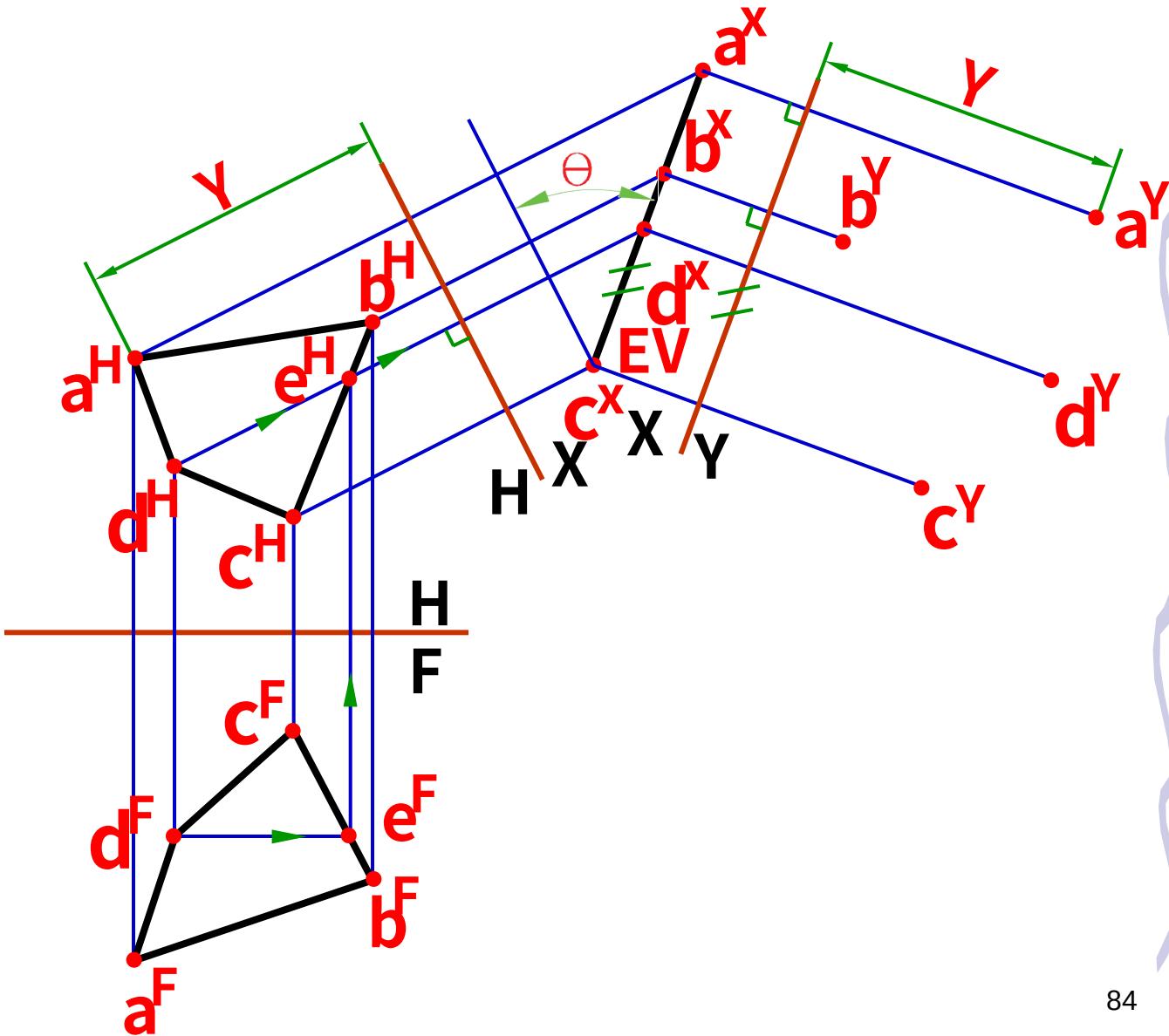
副投影法求複斜平面之實形例二

2/4



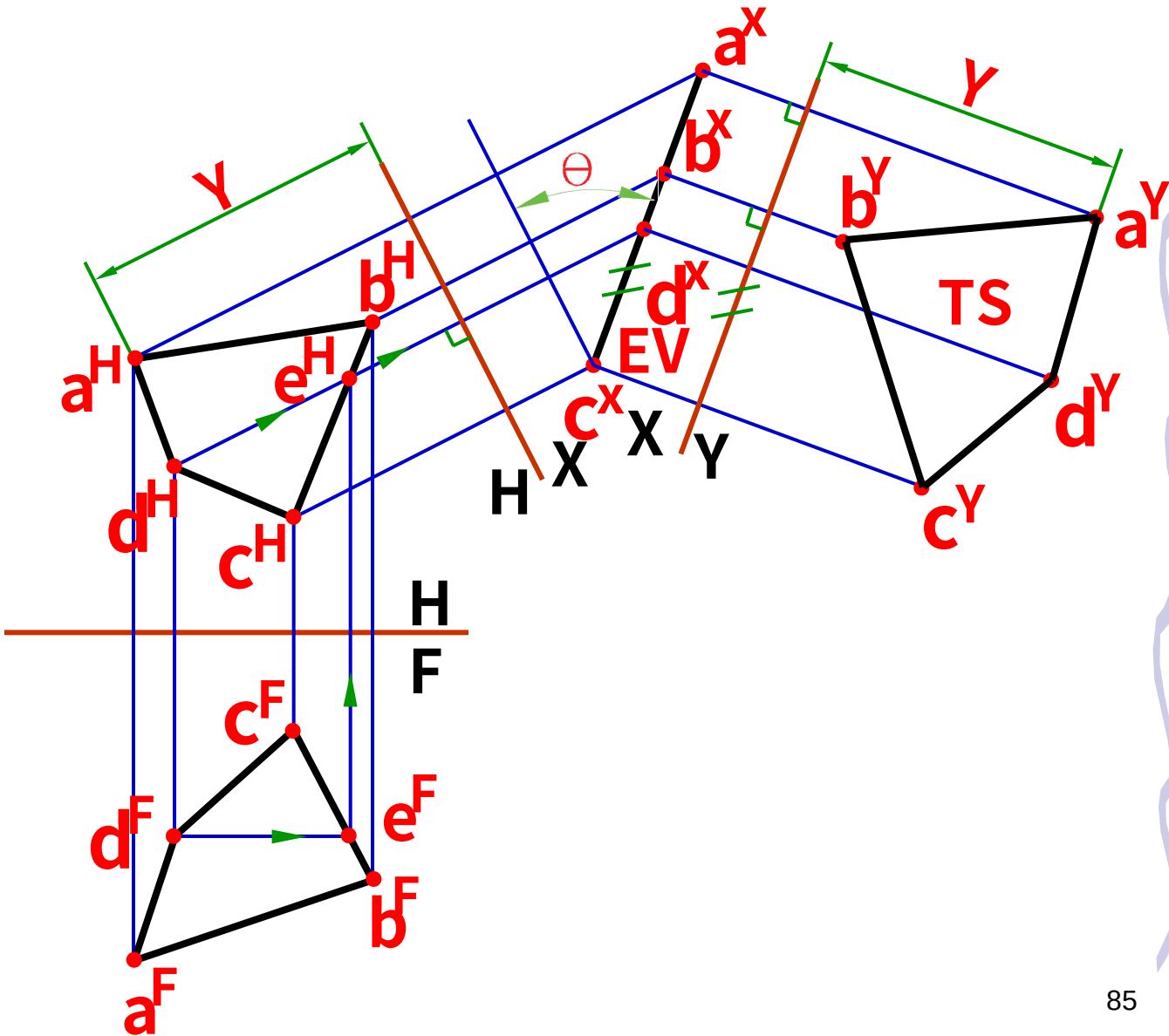
副投影法求複斜平面之實形例二

3/4



副投影法求複斜平面之實形例二

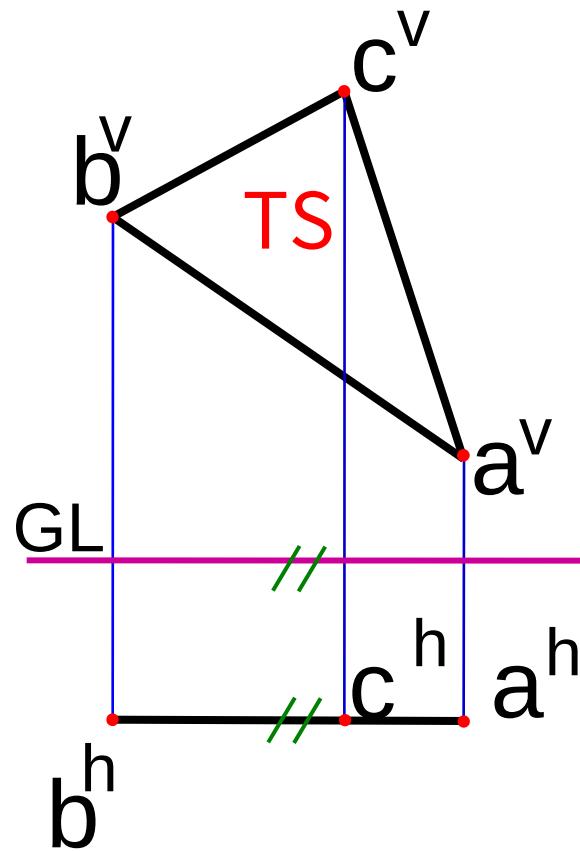
4 / 4



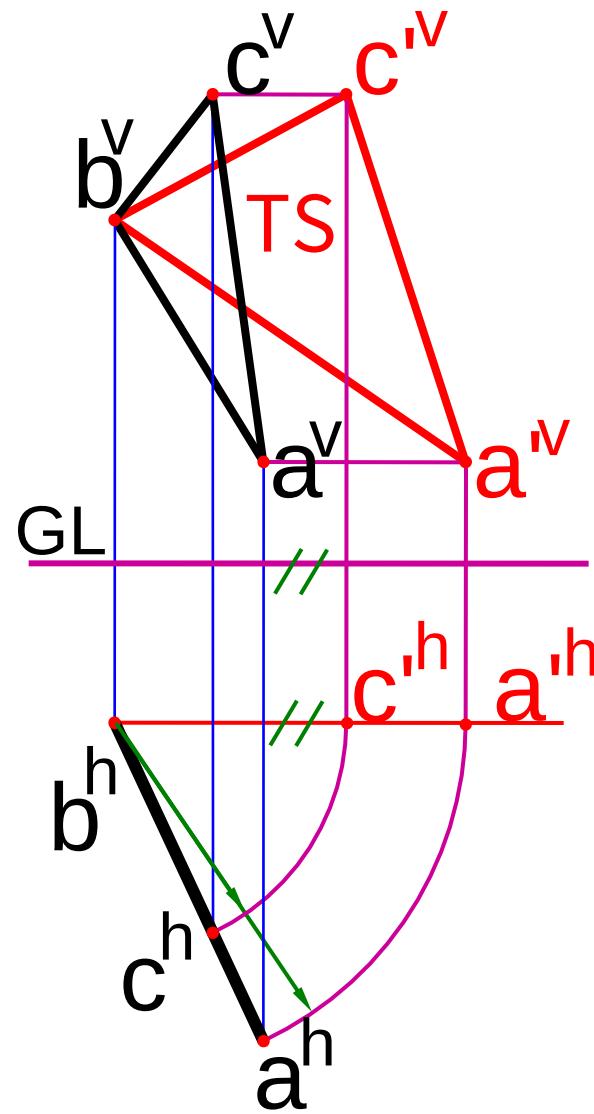
旋轉法求複斜平面之實形

- 先備知識
 - 旋轉法求直線之實長
 - 平面投影呈現實長之條件

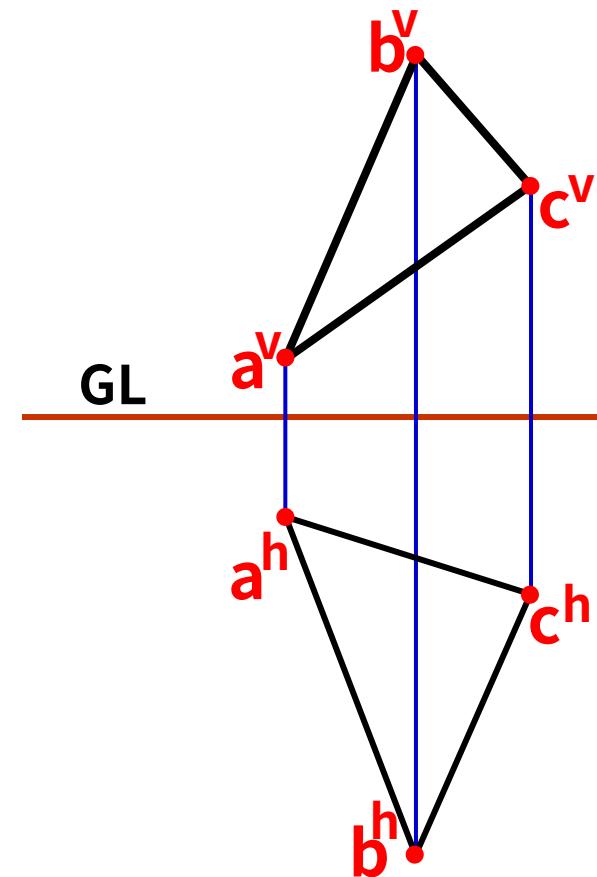
旋轉法求單斜平面之實形



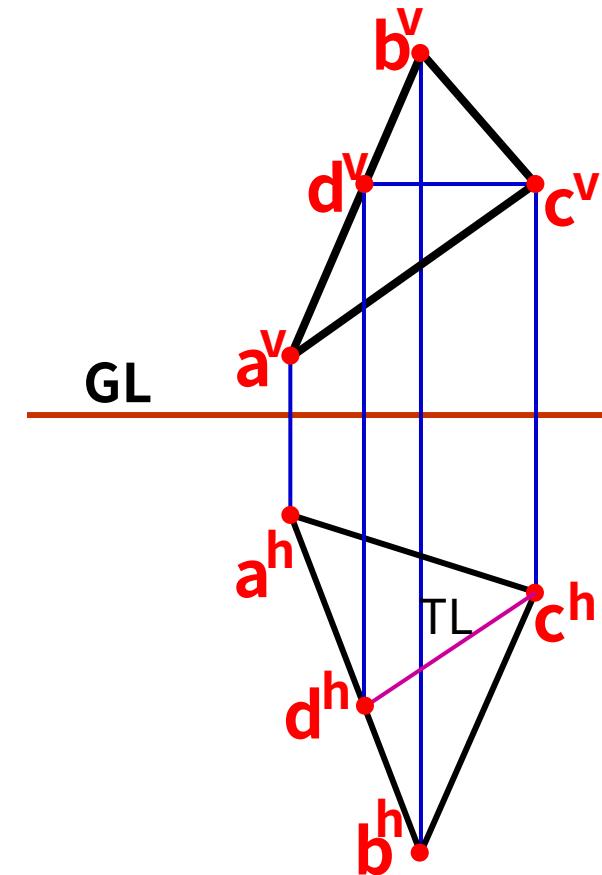
旋轉法求單斜平面之實形



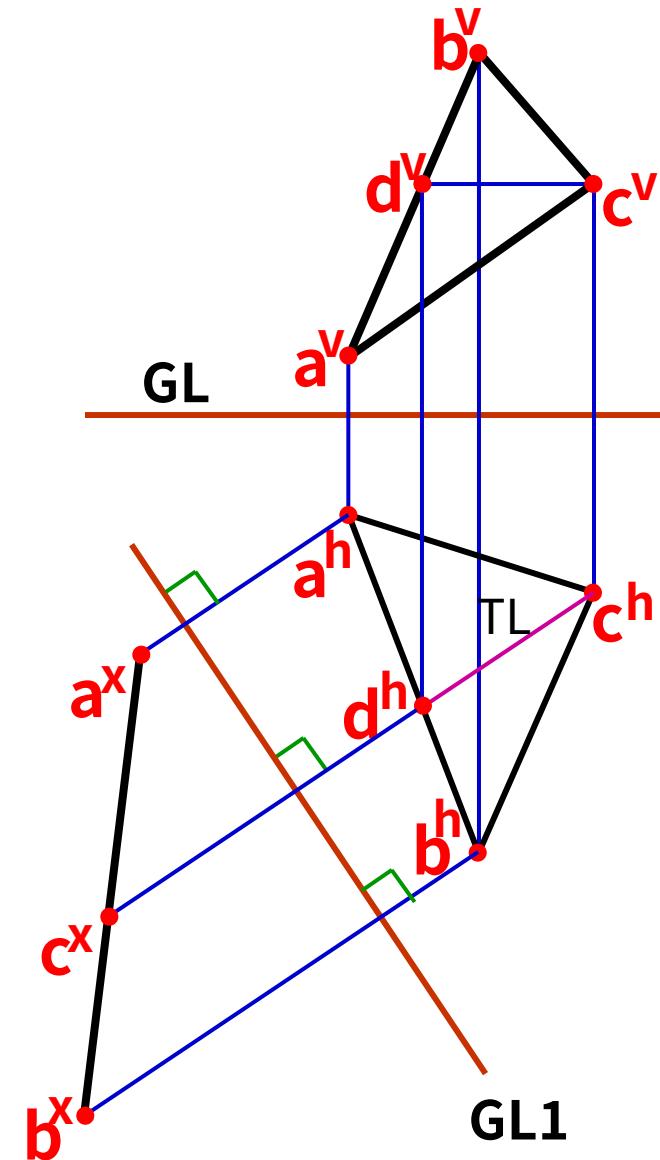
旋轉法求複斜平面之實形例題 1/7



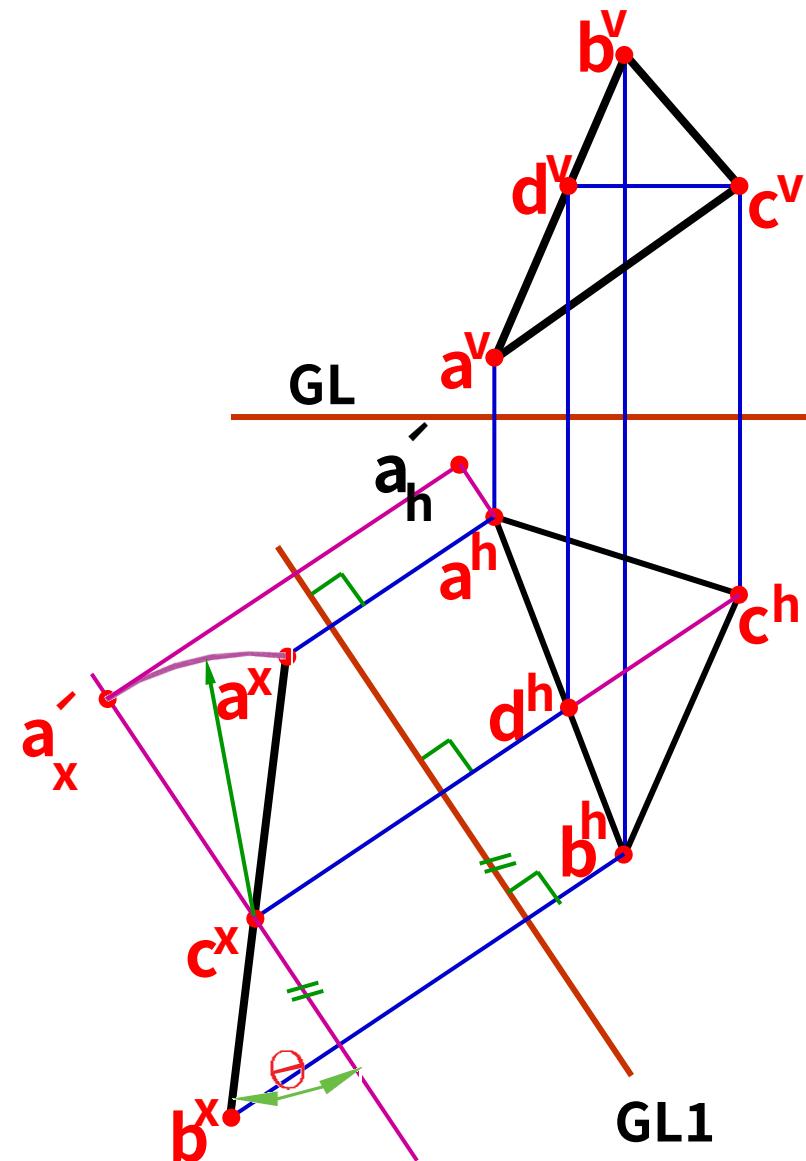
旋轉法求複斜平面之實形例題 2/7



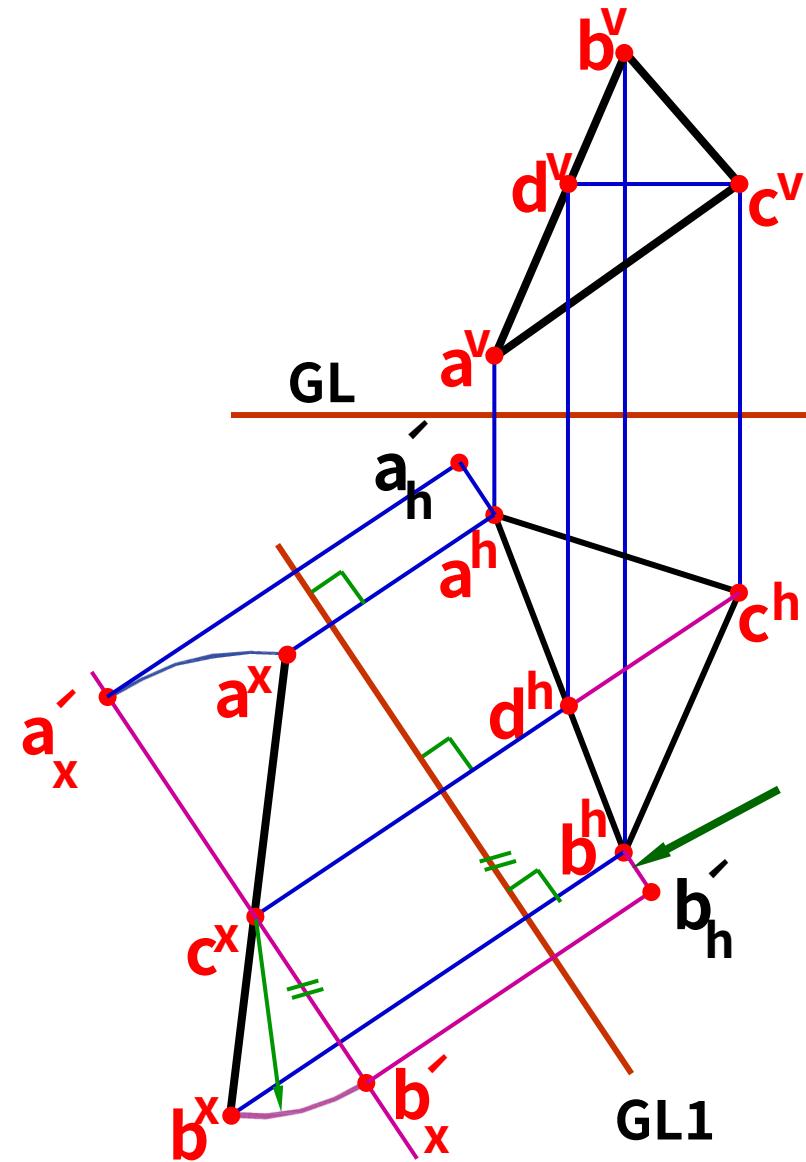
旋轉法求複斜平面之實形例題 3/7



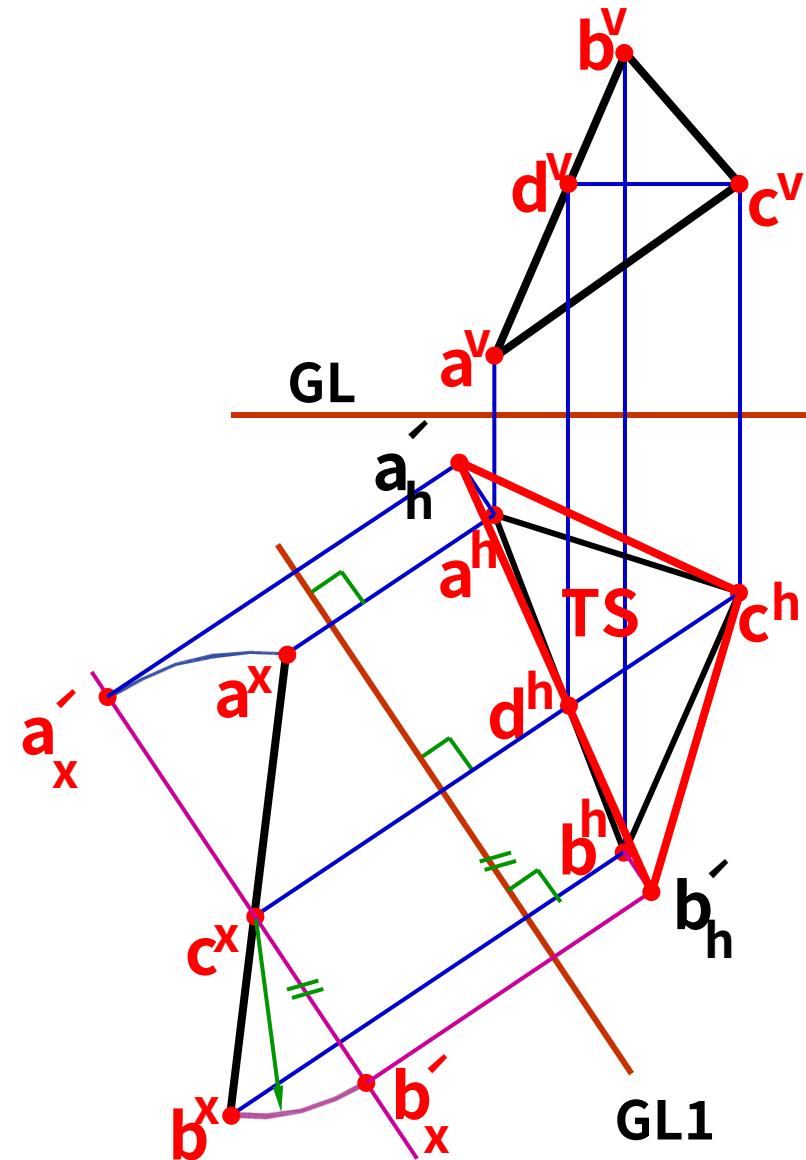
旋轉法求複斜平面之實形例題 4/7



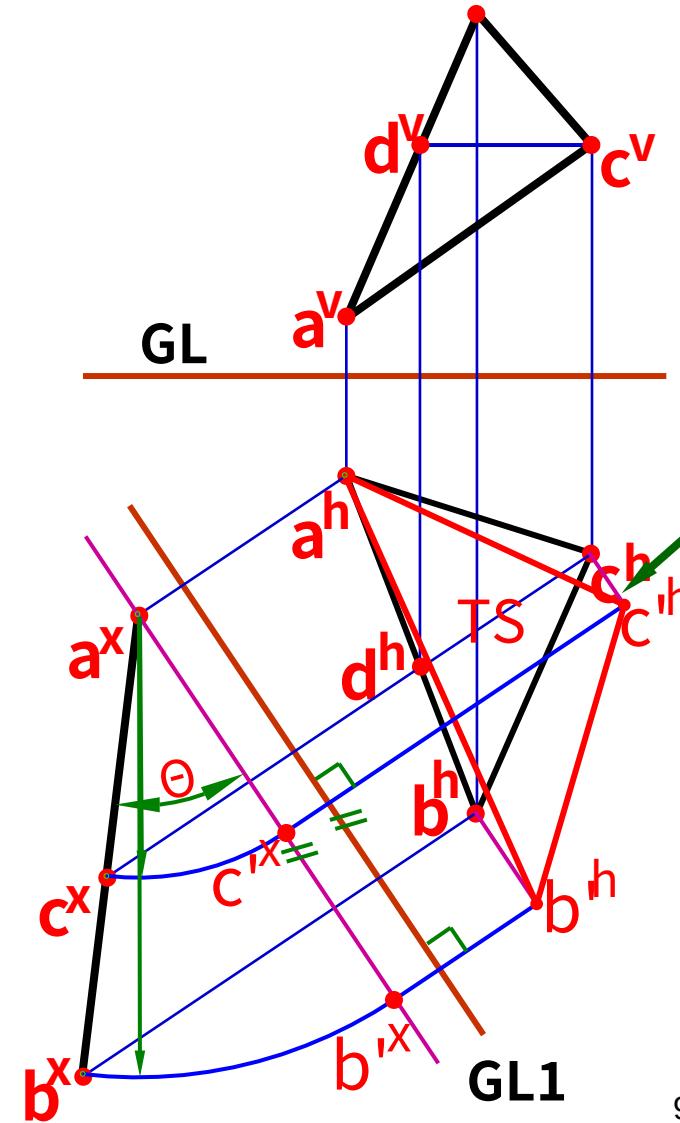
旋轉法求複斜平面之實形例題 5/7



旋轉法求複斜平面之實形例題 6/7

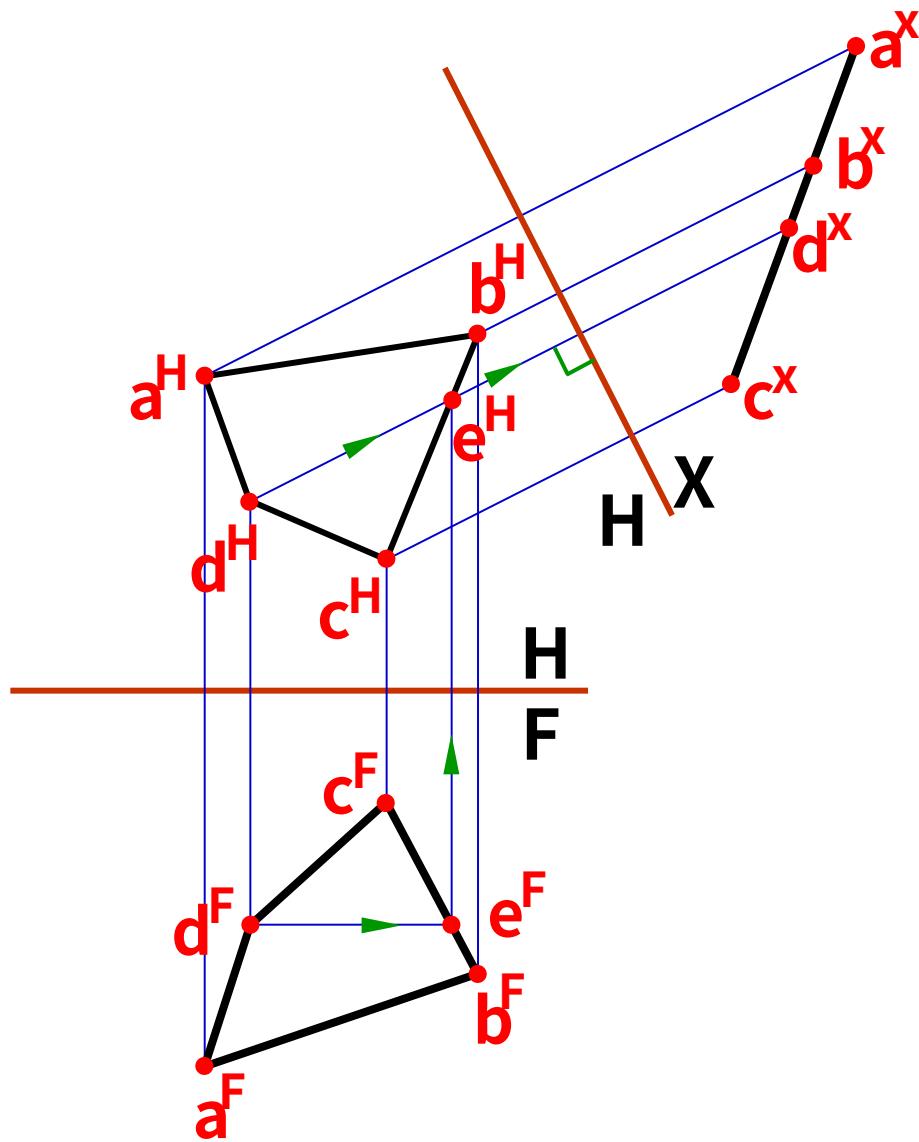


旋轉法求複斜平面之實形例題 7/7



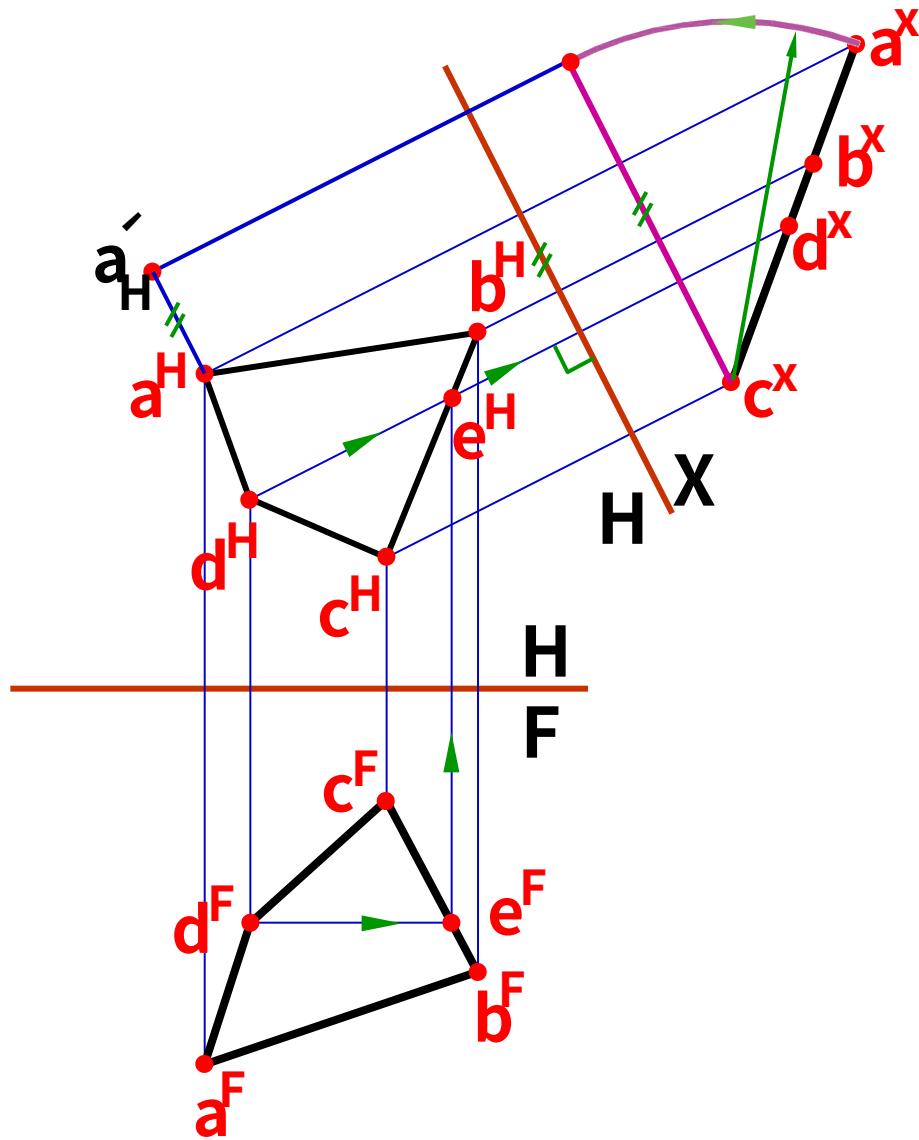
旋轉法求複斜平面之實形例題二

1/5



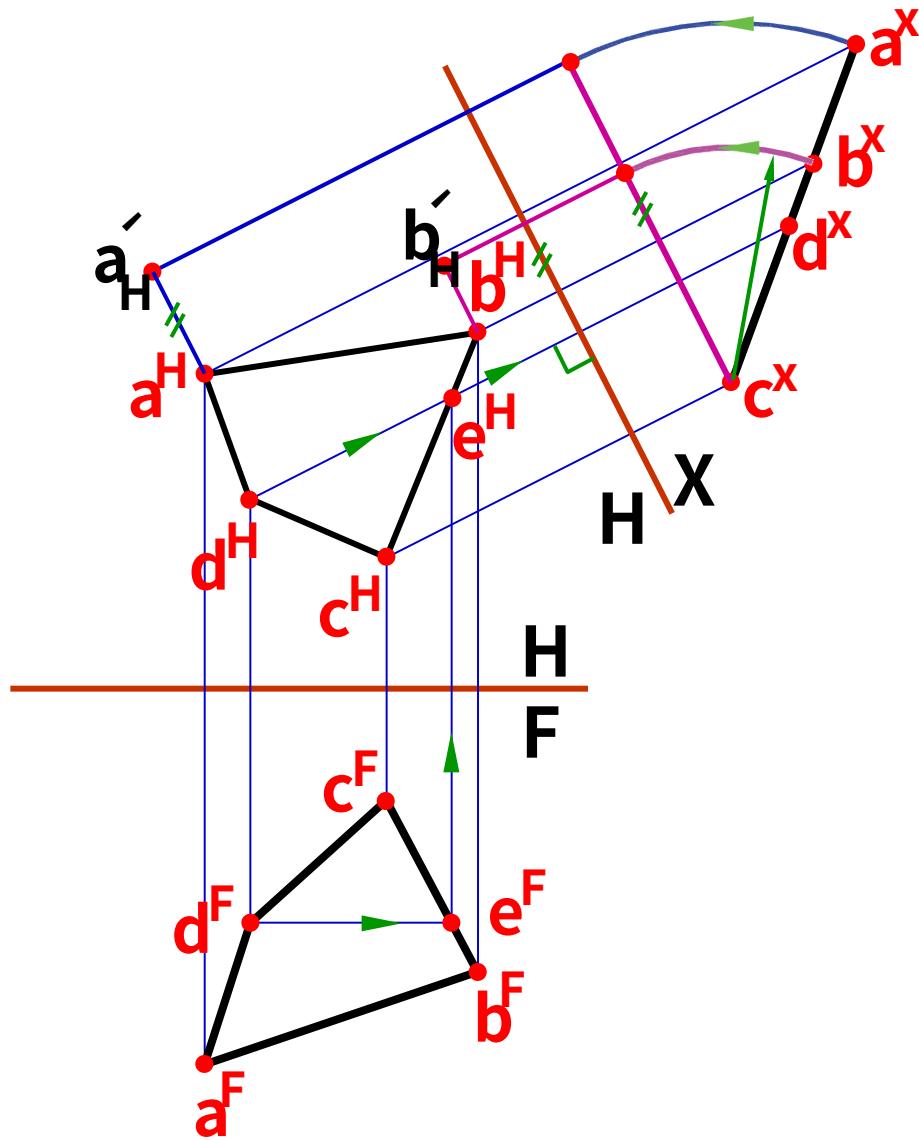
旋轉法求複斜平面之實形例題二

2/5



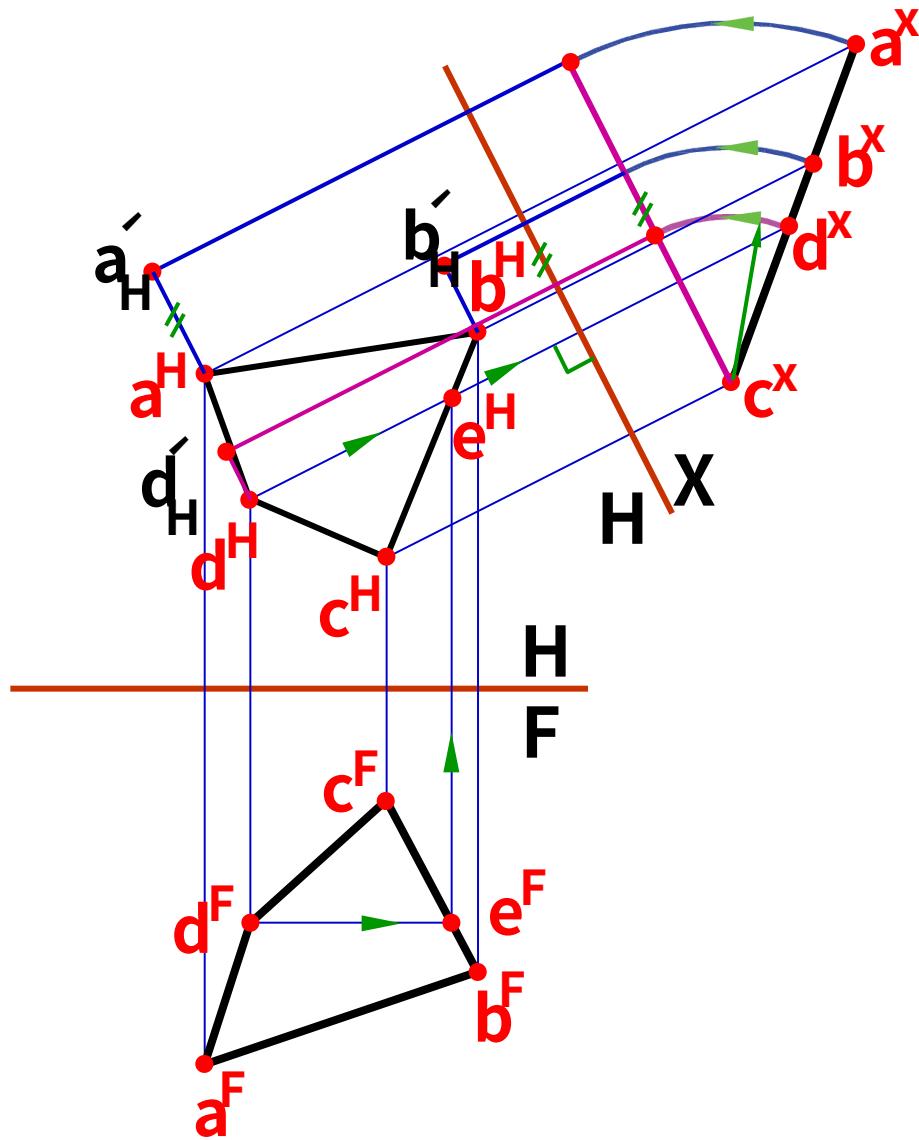
旋轉法求複斜平面之實形例題二

3/5



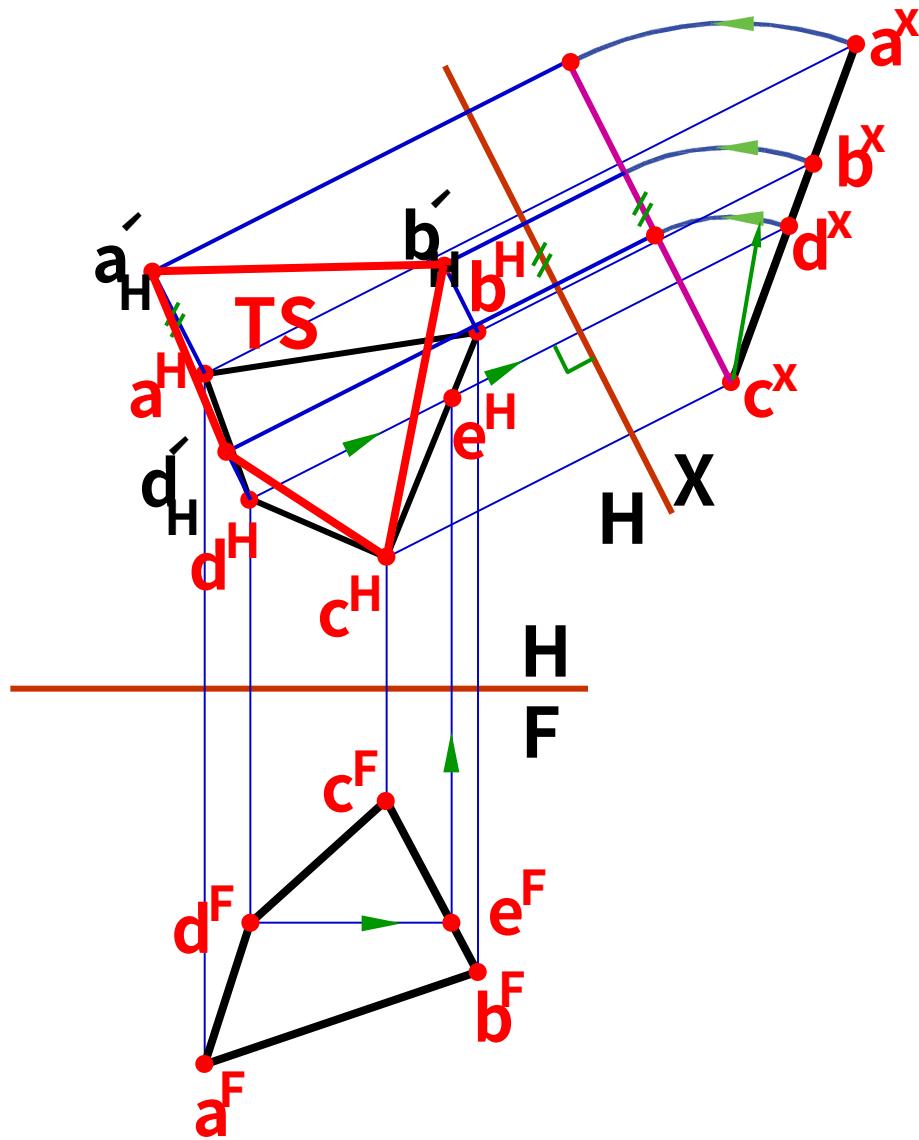
旋轉法求複斜平面之實形例題二

4/5

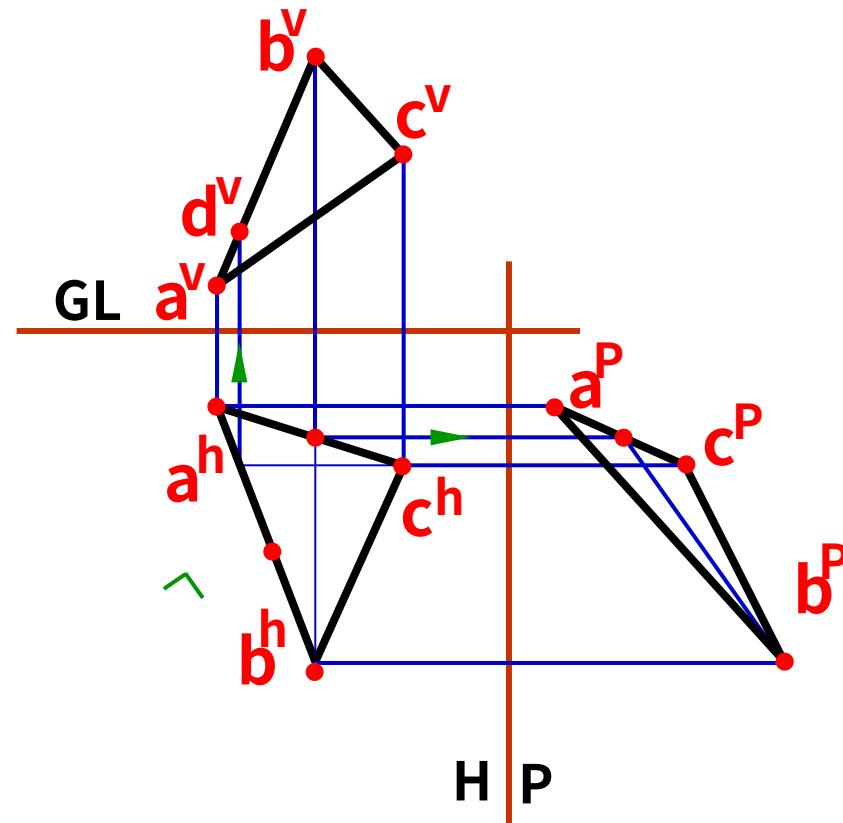


旋轉法求複斜平面之實形例題二

5/5

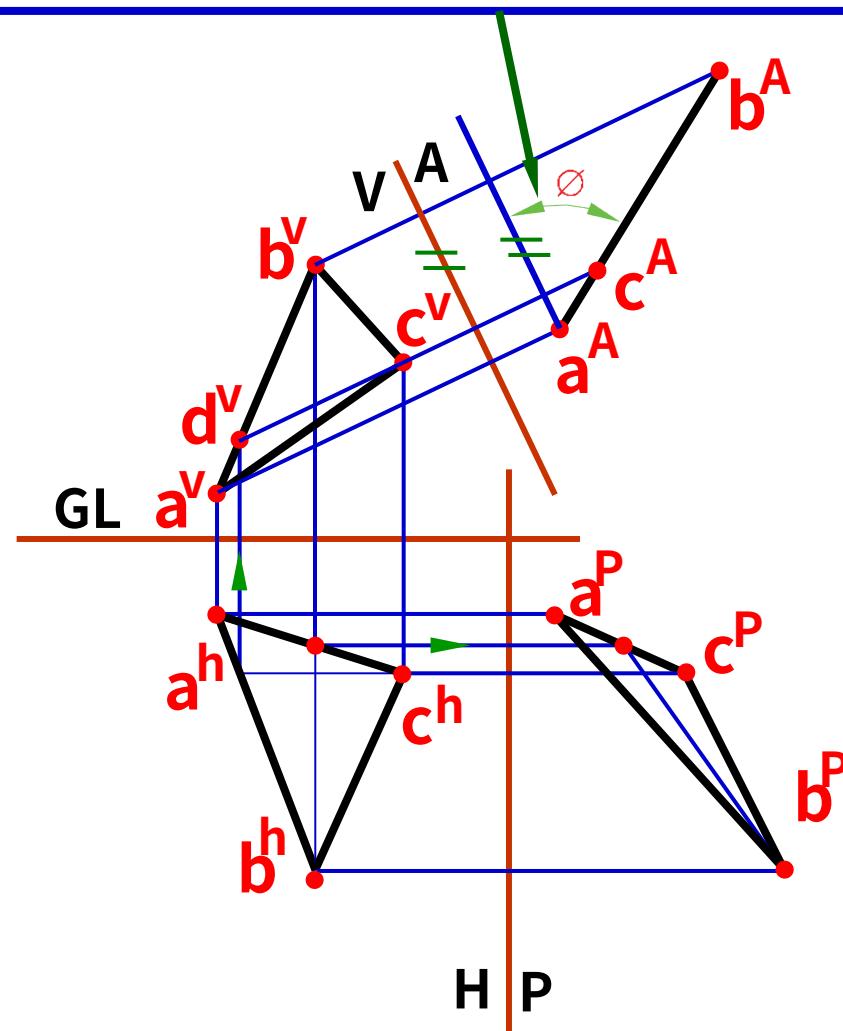


平面之傾銷角 1/4



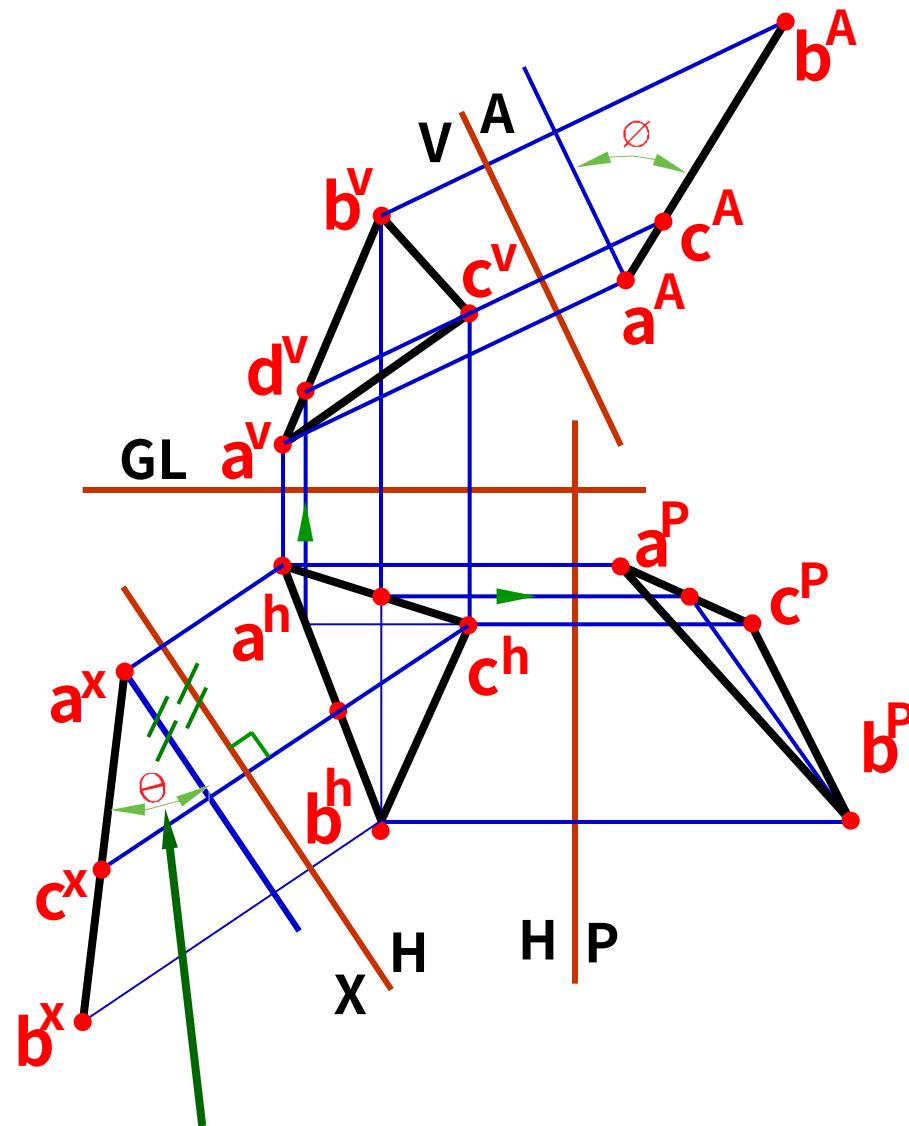
平面之傾銷角

2/4



平面之傾銷角

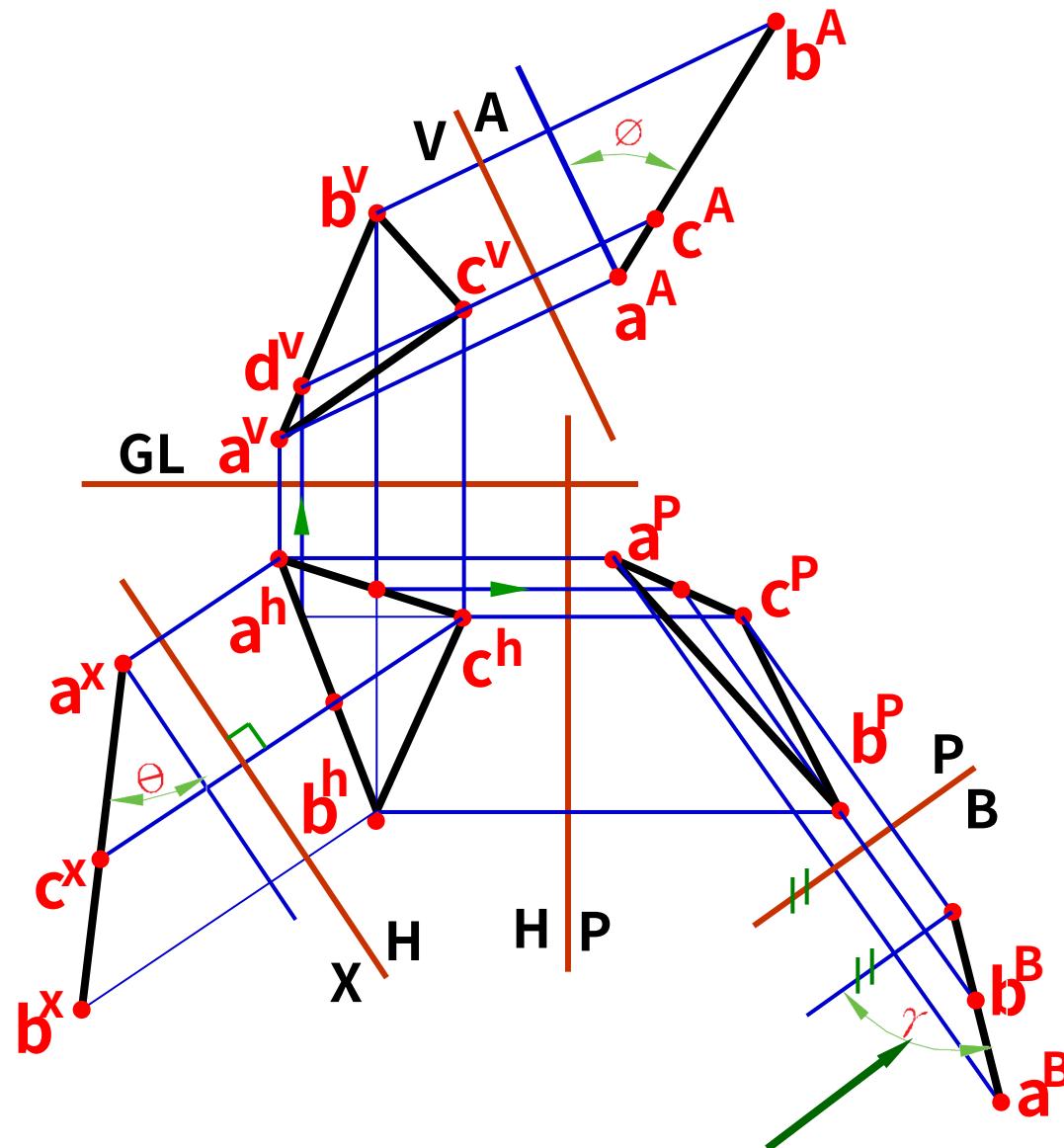
3/4



CAD圖

平面之傾銷角

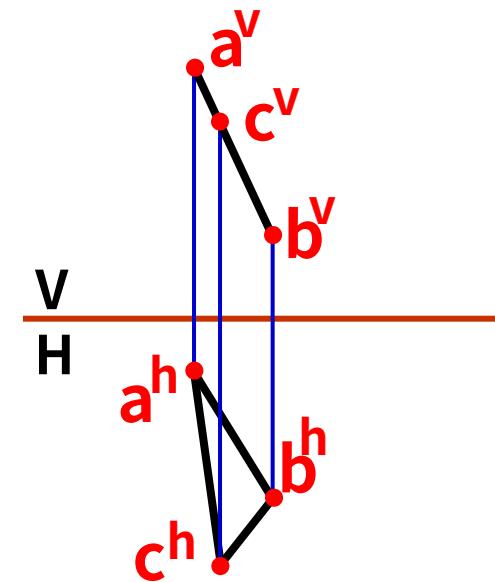
4/4



CAD圖

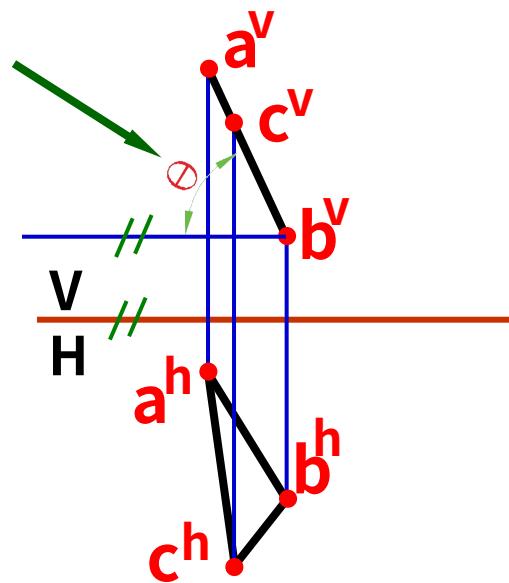
副投影法求平面之傾銷角

1/5



副投影法求平面之傾銷角

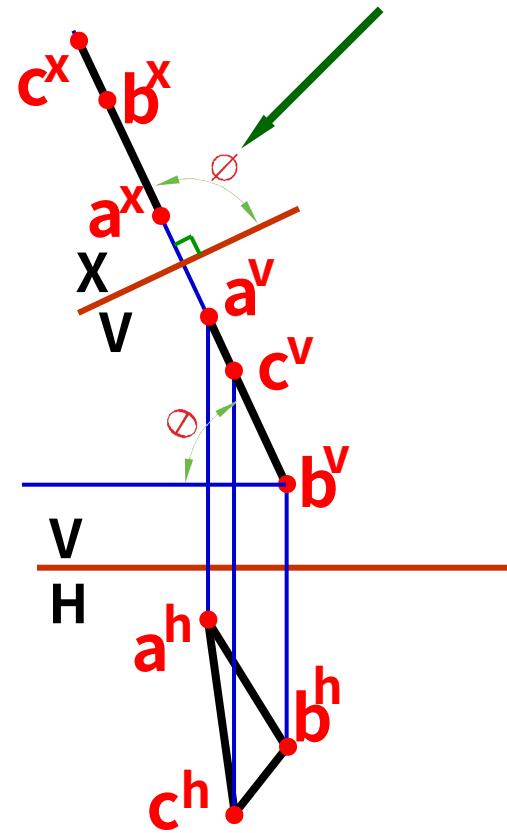
2/5



CAD圖

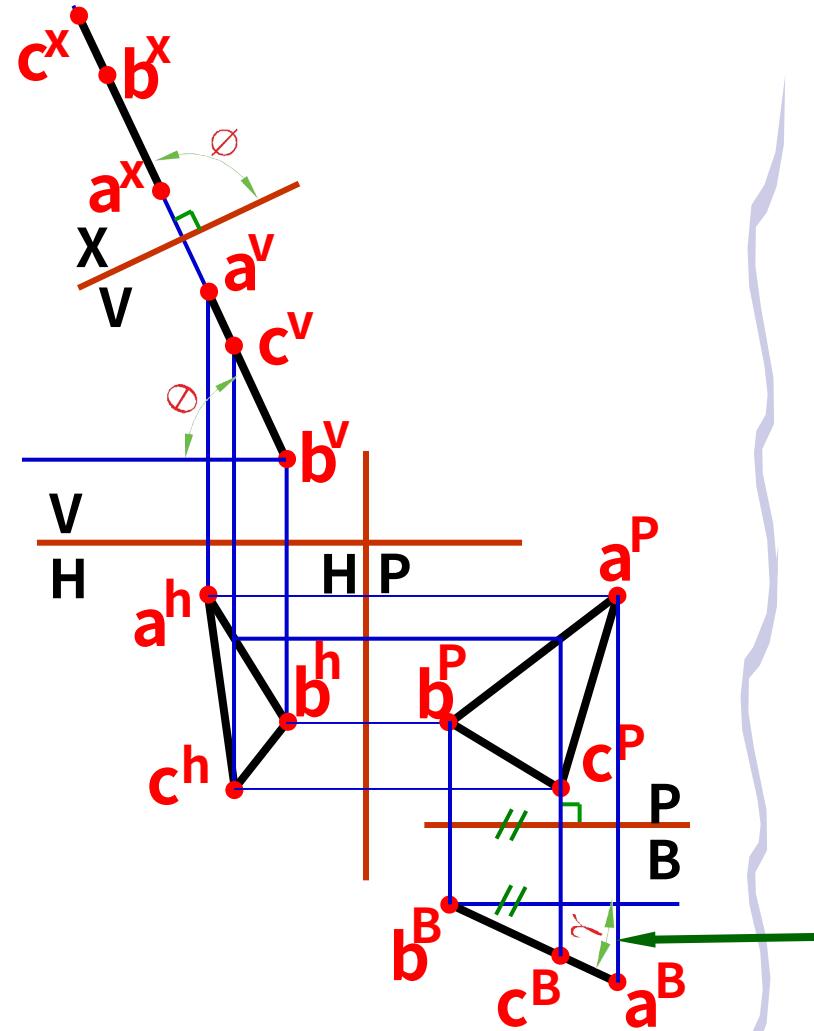
副投影法求平面之傾銷角

3/5



副投影法求平面之傾銷角

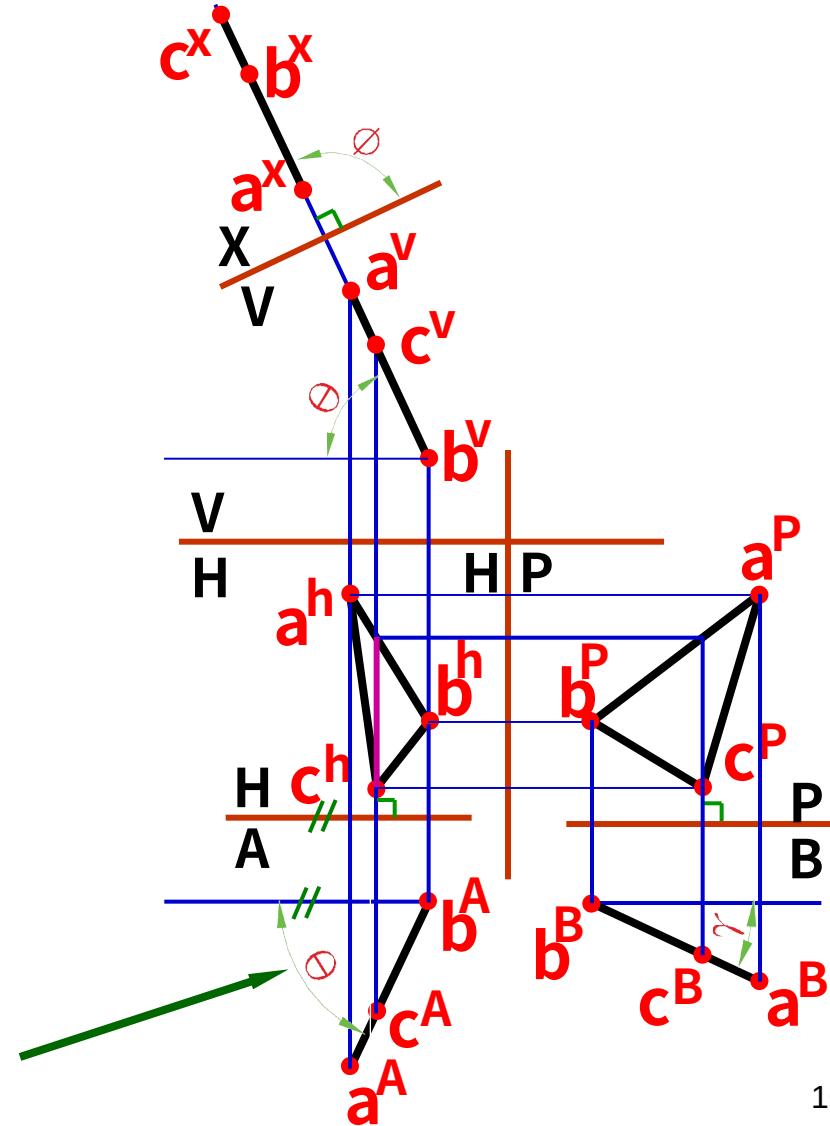
4/5



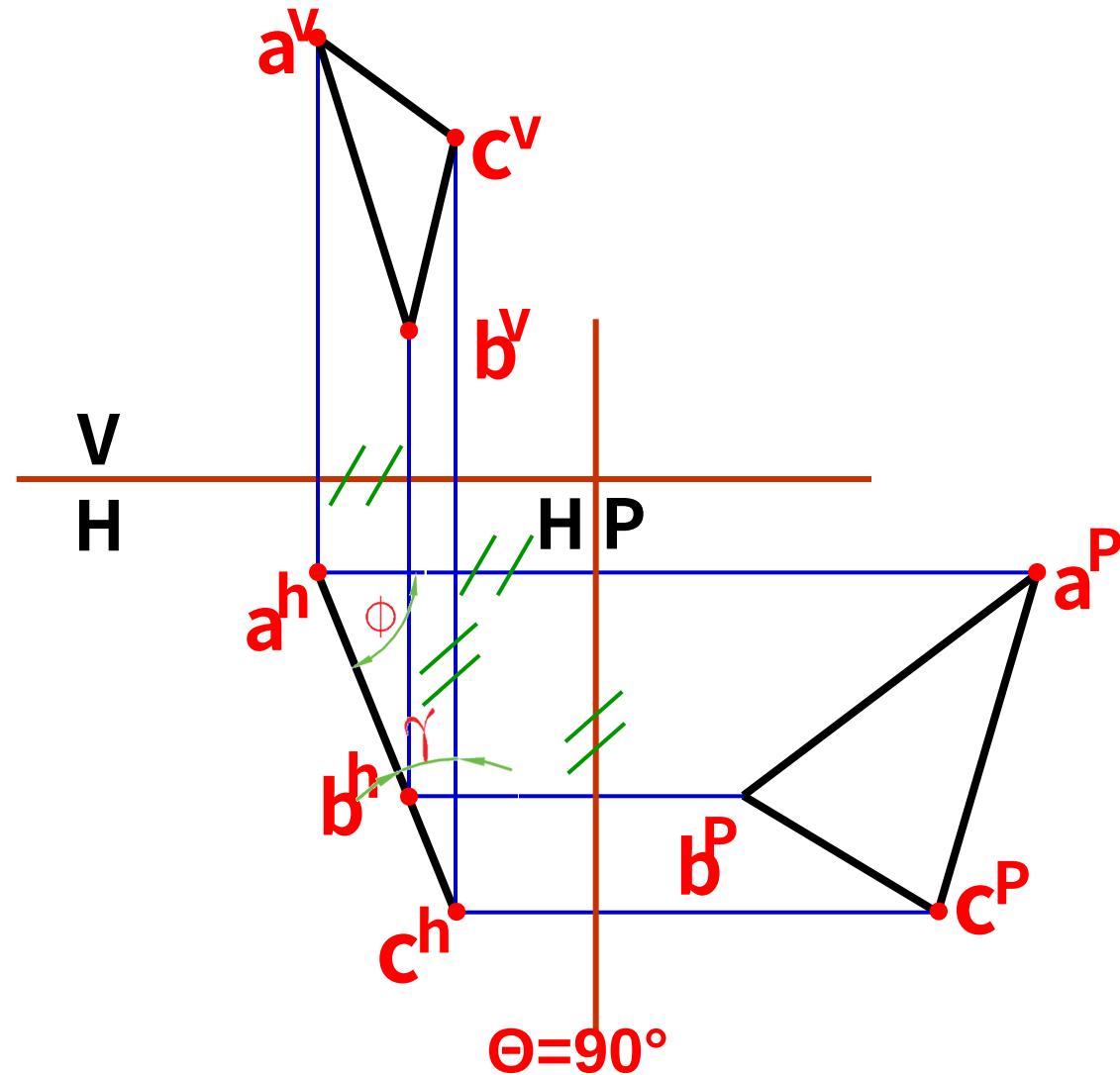
CAD圖

副投影法求平面之傾銷角

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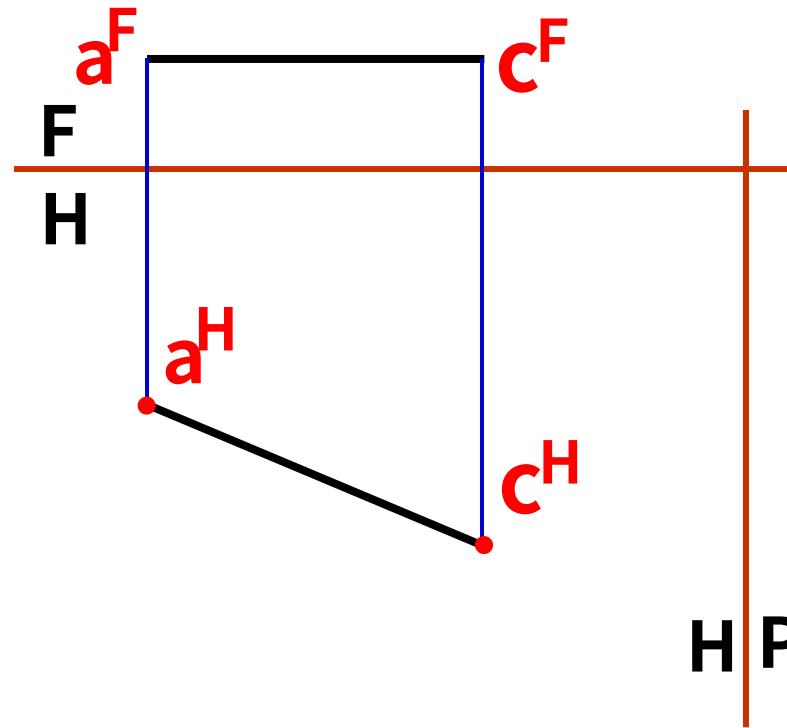
邊視圖之平面之傾銷角



CAD圖

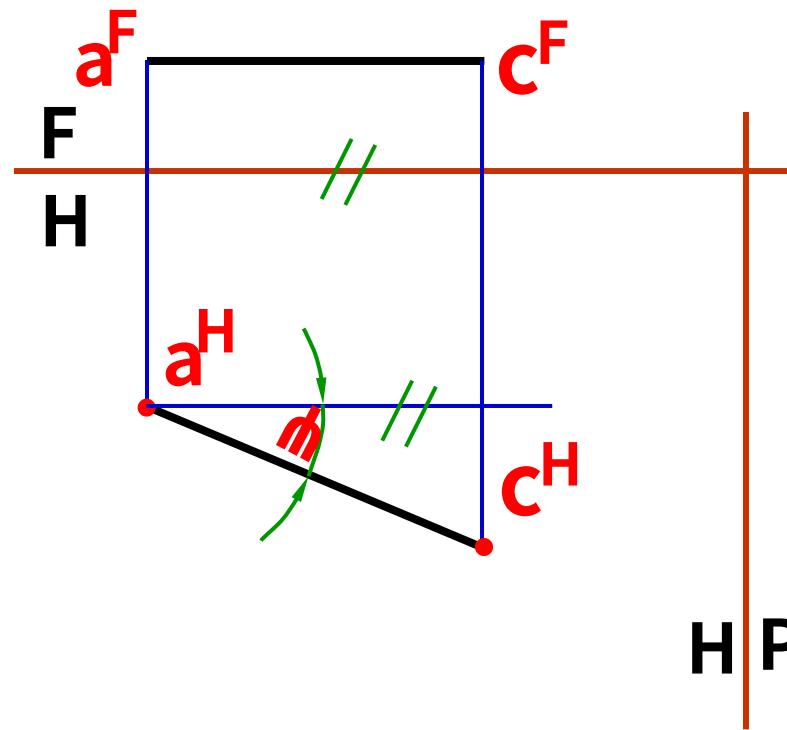
直線與投影面之夾角

1/5



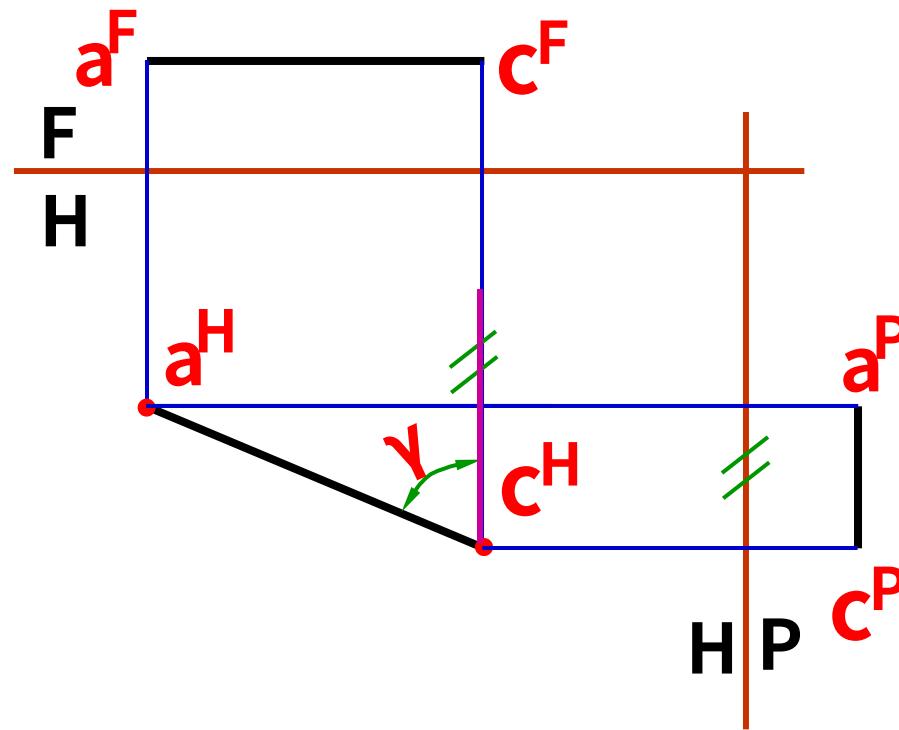
直線與投影面之夾角

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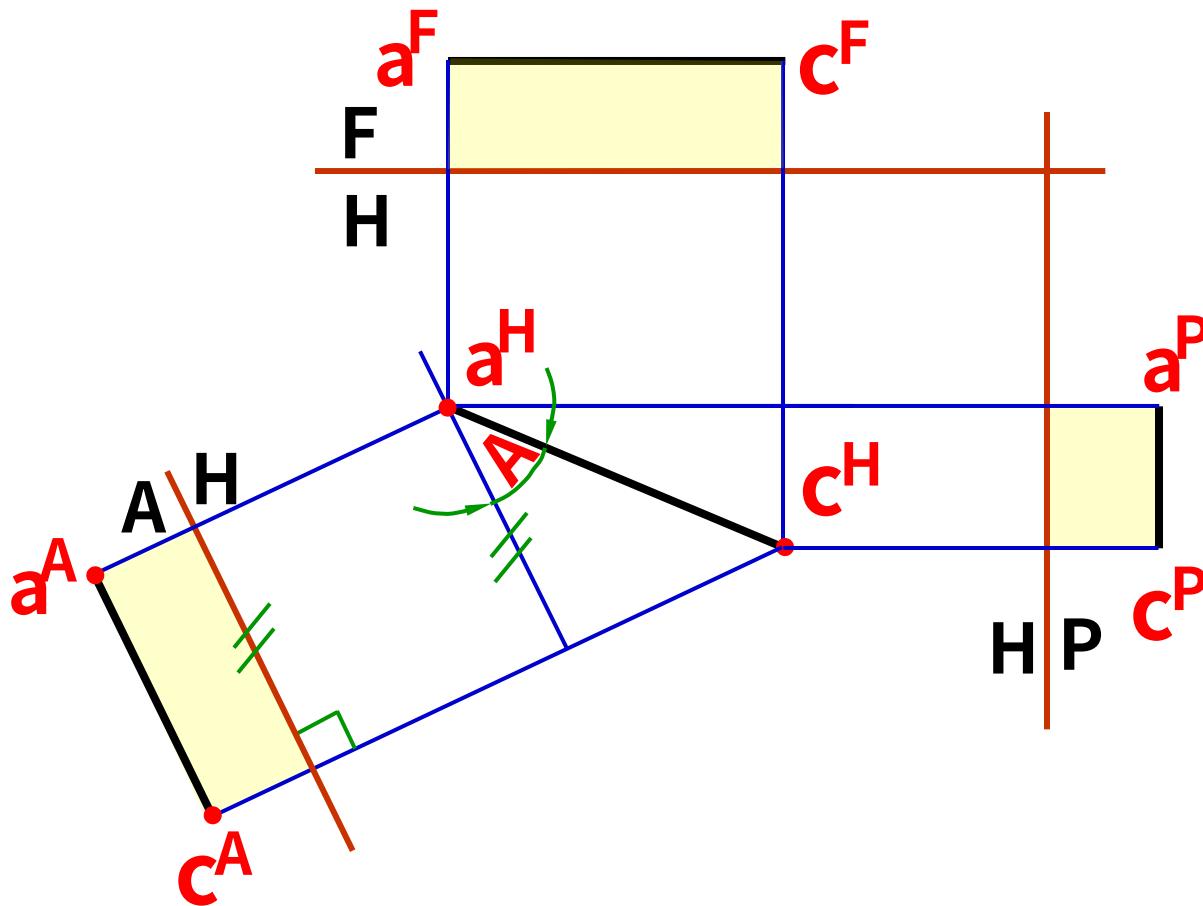
直線與投影面之夾角

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直線與投影面之夾角

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直線與投影面之夾角

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