

計算 1.

$$\begin{aligned} & \underline{(I-BA)} \left[\underline{I+B(I-AB)^{-1}A} \right] \\ &= (I-BA) + (I-BA)B(I-AB)^{-1}A \\ &= (I-BA) + (B-BAB)(I-AB)^{-1}A \\ &= I-BA + B \underline{(I-AB)(I-AB)^{-1}A} = I \end{aligned}$$

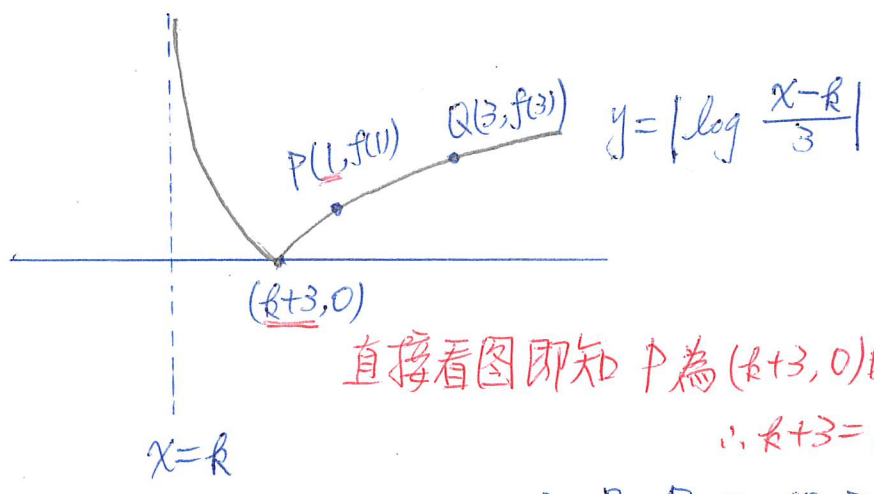
另一邊

$$\begin{aligned} & \left[\underline{I+B(I-AB)^{-1}A} \right] \underline{(I-BA)} \\ &= (I-BA) + B(I-AB)^{-1}A(I-BA) \\ &= (I-BA) + B(I-AB)^{-1}(A-ABA) \\ &= I-BA + B \underline{(I-AB)^{-1}(I-AB)A} = I \end{aligned}$$

其實方陣有一邊可逆, 另一邊就一定可逆

$$\therefore (I-BA)^{-1} = I + B(I-AB)^{-1}A_{\#}$$

7.



直接看圖即知 P 為 $(k+3, 0)$ 時, 斜率最大
 $\therefore k+3=1 \Rightarrow k=-2$

否則就慢慢分段討論

case 1^o: $k < 1 < 3 < k+3$

case 2^o: $k < 1 < k+3 \leq 3$

case 3^o: $k+3 \leq 1 < 3$