$\boxed{\text{distance}(p, L)}$

1. plane L in R^n,

$L = \{x \mid nx + c = 0\}$, $p \notin L$, $c \in R$,

$\Rightarrow$ distance(p, L)

solve:

① let $L(x) = nx + c$,

$\cancel{L^*(x)=}$ $L^* = \{x \mid \cancel{x} = p + sn, \forall s \in R\}$

② let $x_0 \in L^*$, $x_0 \in L$

$\Rightarrow$ distance$(p, L) = \|p - x_0\|$

③ $\because \exists s_0$, s.t. $x_0 = p + s_0 n$,

$\because x_0 \in L$, $\therefore L(x_0) = 0$

④ $L(p)$

$= L(p - x_0) + L(x_0) - c$

$= L(p - x_0) - c$

$= L(-s_0 n) - c$

$= -s_0 \|n\|^2$

$\therefore |s_0|\|n\| = \dfrac{|L(p)|}{\|n\|}$

⑤ $\therefore$ dis $= \|p - x_0\|$

$= \|-s_0 n\|$

$= \dfrac{|L(p)|}{\|n\|}$

2. line L in R^n,

$L = \{x \mid a + \lambda d = x, \forall \lambda \in R\}$

$p \notin L$,

$\Rightarrow$ distance(p, L)

solve: ① let $x_0 \in L$, $x_0 \in L^*$,

here $L^* = \{x \mid dx + c = 0\}$

$c = -p \cdot d \in R$.

L^* is plane

② $\because$ distance(p, L)

$= \|x_0 - p\|$

③ $\because dx_0 + c = 0$, $x_0 \in L$

$\therefore da + \lambda\|d\|^2 + c = 0$

$\therefore \lambda = \dfrac{(p-a)\cdot d}{\|d\|^2}$

$\Rightarrow x_0 = a + \lambda d$

$\Rightarrow$ dis $= \|x_0 - p\|$