

۱- الف) داده ها: $\bar{x}_{cg} = 0.6$ $C_{m\alpha} = -1/59$ $C_{L\alpha} = 4/59$ $\bar{x}_{acwb} = 0.14$ $C = 5/185$ $S = 199$

$\eta_H = 0.90$ $\frac{dE}{d\alpha} = 0.5$ $C_{L\alpha H} = 4/11$ $S_H = 45/11$ $C_{L\alpha w} = 4/11$ $\bar{x}_{acH} = 3/5$

$C_{L\alpha} = C_{L\alpha B} + C_{L\alpha w} + C_{L\alpha H} \eta_H \frac{S_H}{S}$ $S.M = \frac{C_{m\alpha}}{C_{L\alpha}} = -0.13$

$\Rightarrow C_{L\alpha B} = C_{L\alpha} - (C_{L\alpha w} + C_{L\alpha H} \eta_H \frac{S_H}{S}) = -0.165$

ب) $C_{m\alpha r} = C_{L\alpha r} \times S.M_r \Rightarrow C_{m\alpha H} = -C_{L\alpha H} \eta_H \frac{S_H}{S} (\bar{x}_{acH} - \bar{x}_{cg}) (1 - \frac{dE}{d\alpha})$

$\Rightarrow C_{m\alpha H} = -1/59$ $C_{m\alpha wB} = C_{m\alpha} - C_{m\alpha H} = -0.103$

$C_{L\alpha T} = C_{L\alpha H} \eta_H \frac{S_H}{S} = 1/539$ $C_{L\alpha} = C_{L\alpha wB} + C_{L\alpha T} \eta_H \frac{S_H}{S}$

$C_{L\alpha wB} = C_{L\alpha} - C_{L\alpha T} = 4/59 - 1/539 = 3/56$

$C_{L\alpha r} = C_{L\alpha wB} + C_{L\alpha H} \eta_H \frac{S_H}{S} = 3/56 + 4/11 \times 0.90 \times \frac{S_H}{199}$

$C_{m\alpha Hr} = -C_{L\alpha H} \eta_H \frac{S_H}{S} (\bar{x}_{acH} - \bar{x}_{cg}) (1 - \frac{dE}{d\alpha}) \Rightarrow -0.03 S_{Hr}$

$C_{m\alpha r} = C_{m\alpha wB} + C_{m\alpha Hr} = -0.103 - 0.03 S_{Hr}$

$C_{m\alpha r} = -0.1 C_{L\alpha r}$ $S_{Hr} = 22/172$, $S_{H1} = 45/11$

$\frac{S_{Hr} - S_{H1}}{S_{H1}} \times 100 = \frac{22/172 - 45/11}{45/11} \times 100 = -49/17$

چون منفی است

کم شده است



$$C_{n\beta WB} = 0.1\mu \quad C_{L\alpha_v} = F/c \quad \eta_v = 1 \quad (1 - \frac{d\sigma}{d\beta}) = \gamma + 0.1V\omega \frac{S_v}{S} \quad -F$$

$$\kappa_{vs} = \frac{b}{\gamma} \quad Z_{vs} = \frac{b}{\lambda}$$

$$C_{n\beta} = C_{n\beta WB} + C_{n\beta v} \quad C_{n\beta v} = C_{L\alpha_v} \eta_v \frac{S_v}{S} \frac{L_v}{b} (1 - \frac{d\sigma}{d\beta})$$

$$C_{n\beta v} = C_{n\beta} - C_{n\beta WB} = 0.1\mu + 0.1\mu = 0.2\mu$$

$$0.2\mu = F \left(\frac{S_v}{S} \right) (0.1\omega) \left(\gamma + 0.1V\omega \frac{S_v}{S} \right)$$

$$\rightarrow \frac{S_v}{S} = 0.1\omega\lambda$$