

8.2 Calculate  $\bar{c}$ ,  $\eta$ ,  $\xi$  of wing

$$\bar{c} = \frac{2c_r}{3} \frac{1+\lambda+\lambda^2}{1+\lambda} = \frac{2(9.0)}{3} \frac{1+1.5+1.5^2}{1+1.5} = 7.00 \text{ ft}$$

$$\eta = \frac{b}{6} \frac{1+2\lambda}{1+\lambda} = \frac{34.4}{6} \frac{1+2(1.5)}{1+1.5} = 7.64 \text{ ft}$$

$$\xi = \rho \bar{c} + \eta \tan \Lambda_{ee} = .258(7.00) + 7.64 \tan \frac{16.5}{57.3} = 4.07 \text{ ft}$$

Distance from nose to leading edge of wing mac:

$$\text{Nose to wing apex} = 17.0 \text{ ft} \quad (\text{App. A})$$

$$\text{Wing apex to ac } (\xi) = 4.07 \text{ ft} \quad (\text{above})$$

$$\text{Nose to wing ac} = 21.07$$

$$\frac{ac}{\bar{c}} = .258 \quad ac = .258(7.00) = 1.81 \text{ ft}$$

$$\text{Nose to lc of wing ac} = 21.07 - 1.81 = 19.3 \text{ ft}$$