1.   (a) see crib

    (b) see crib

    (c) see crib

    (d) $U_T/U_C = 1/(1+C_fP_TS_C/C_DA_C)^{1/2}$

    (e) See crib

    (f) $\Delta T = (1/2C_DA_CL(U_C-U_T)^2U_C)/(A_TC_PU_TS_C)$

    (g) $\Delta T = \Delta T(\eta_c=1)*(2-\eta_c)$

2.   (a) $L=\rho U^2\pi c\sin\alpha$

    (b) $L=2\rho U^2\pi c\sin\alpha(1+4(\tilde{h}/c)^2)/(4+8(\tilde{h}/c)^2)$

    (c) see crib

3.   (a) $F(z)=Uz+(i\Gamma/2\pi)(\ln(z+ia)-\ln(z-ia))$

    (b) $\zeta=a^{3/2}e^{i3\pi/4}$ (and origin maps to corner)

    (c) $\Gamma=-\pi aU$

    (d) $u-iv=1/2Ua^{-1/2}e^{-i\pi/4}$

4.   (a) $V_p4s^2\Gamma/\pi)h/(9s^4+10s^2h^2+h^4)$

    (b) $h=0.86s$

    (c) see crib

5.   (a) $d\Gamma=(d\Gamma/dz)dz$

    (b) $\Gamma_{op}=(3\pi/8)\Gamma_{oe}$

    (c) $w_p/w_e=3/2$

    (d) see crib

6. (a) $u/U_e = \sin(\pi\eta/2)$

    (b) (i) $\delta^* = (1 - 2/\pi)\delta$

        (ii) $\tau = \delta(2/\pi - 1/2)$

        (iii) $T_w = \pi\rho\nu U_e/\delta$

    (c) see crib

    (d) $\delta = x\,(2\pi/(4/\pi - 1)^{1/2}R_x^{-1/2}$

        $C_f' = ((4-\pi)/2)^{1/2}\,R_x^{-1/2}$

7. (a) see crib

    (b) $L = (\rho\nu/\sigma B^2)^{1/2}$

    (c) $U = \cosh(z/L) - \cosh(h/2L)$

    (d) see crib

8. (a) $\Psi = U\sin\theta(r - a^2/r)$

    (b) 12% error

    (c) $F_y = -(4/3)\rho a U^2$ (down-force)

    (d) see crib