

14.5.9

$$f+ig \sim 1 + \frac{(i\eta-L)(i\eta+L+1)}{1!(2i\rho)} + \frac{(i\eta-L)(i\eta-L+1)(i\eta+L+1)(i\eta+L+2)}{2!(2i\rho)^2} + \frac{(i\eta-L)(i\eta-L+1)(i\eta-L+2)(i\eta+L+1)(i\eta+L+2)(i\eta+L+3)}{3!(2i\rho)^3} + \dots$$

Asymptotic Expansion for  $L=0, \rho=2\eta \gg 0$

14.5.10 
$$\frac{F_0(2\eta)}{G_0(2\eta)/\sqrt{3}} \sim \frac{\Gamma(1/3)\beta^{1/2}}{2\sqrt{\pi}} \left\{ 1 \mp \frac{2}{35} \frac{\Gamma(2/3)}{\Gamma(1/3)} \frac{1}{\beta^4} - \frac{32}{8100} \frac{1}{\beta^6} \mp \frac{92672}{7371 \cdot 10^4} \frac{\Gamma(2/3)}{\Gamma(1/3)} \frac{1}{\beta^{10}} - \dots \right\}$$

14.5.11

$$\frac{F'_0(2\eta)}{G'_0(2\eta)/\sqrt{3}} \sim \frac{\Gamma(2/3)}{2\sqrt{\pi}\beta^{1/2}} \left\{ \pm 1 + \frac{1}{15} \frac{\Gamma(1/3)}{\Gamma(2/3)} \frac{1}{\beta^2} \pm \frac{8}{56700} \frac{1}{\beta^6} + \frac{11488}{18711 \cdot 10^3} \frac{\Gamma(1/3)}{\Gamma(2/3)} \frac{1}{\beta^8} \pm \dots \right\}$$

$$\beta = (2\eta/3)^{1/2}, \Gamma(1/3) = 2.678938534\dots, \Gamma(2/3) = 1.354117939\dots$$

14.5.12

$$F_0(2\eta) \sim \left\{ \begin{matrix} .70633 & 26373 \\ 1.22340 & 4016 \end{matrix} \right\} \eta^{1/2} \left\{ 1 \mp \frac{.04959}{\eta^{1/2}} \frac{570165}{\eta^2} - \frac{.00888}{\eta^2} \frac{88888}{89} \right. \\ \left. \mp \frac{.00245}{\eta^{1/2}} \frac{51991}{\eta^{1/2}} \frac{81}{\eta^4} - \frac{.00091}{\eta^4} \frac{08958}{\eta^4} \frac{061}{\eta^4} \mp \frac{.00025}{\eta^{1/2}} \frac{34684}{\eta^{1/2}} \frac{115}{\eta^{1/2}} - \dots \right\}$$

14.5.13

$$F'_0(2\eta) \sim \left\{ \begin{matrix} .40869 & 57323 \\ -.70788 & 17734 \end{matrix} \right\} \eta^{-1/2} \left\{ 1 \pm \frac{.17282}{\eta^{1/2}} \frac{60369}{\eta^{1/2}} + \frac{.00031}{\eta^2} \frac{74603}{\eta^2} \frac{174}{\eta^2} \right. \\ \left. \pm \frac{.00358}{\eta^{1/2}} \frac{12148}{\eta^{1/2}} \frac{50}{\eta^4} + \frac{.00031}{\eta^4} \frac{17824}{\eta^4} \frac{680}{\eta^4} \pm \frac{.00090}{\eta^{1/2}} \frac{73966}{\eta^{1/2}} \frac{427}{\eta^{1/2}} + \dots \right\}$$

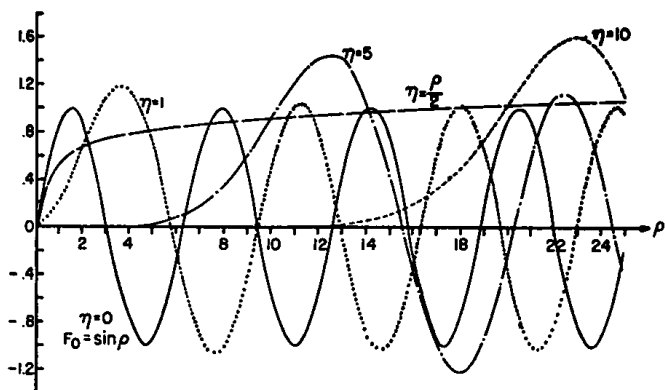


FIGURE 14.3.  $F_0(\eta, \rho)$ .

$\eta=0, 1, 5, 10, \rho/2$

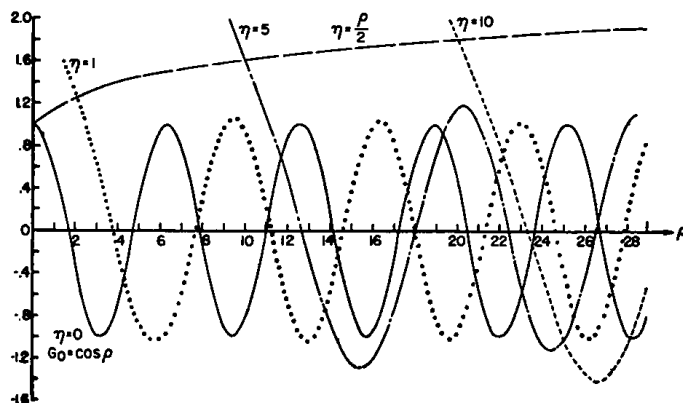


FIGURE 14.5.  $G_0(\eta, \rho)$ .

$\eta=0, 1, 5, 10, \rho/2$

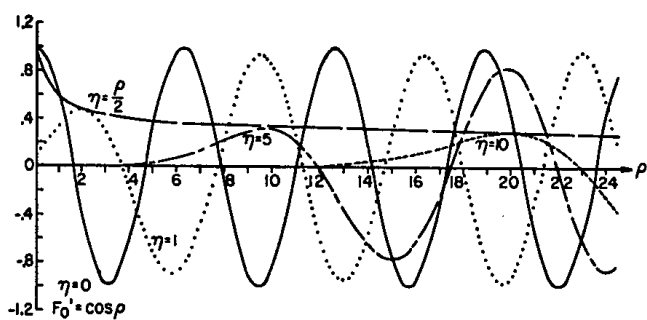


FIGURE 14.4.  $F'_0(\eta, \rho)$ .

$\eta=0, 1, 5, 10, \rho/2$

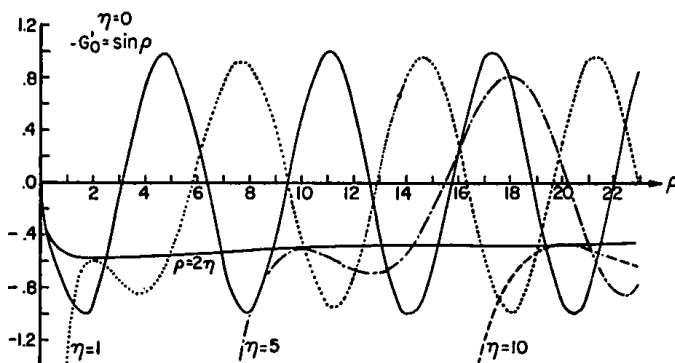


FIGURE 14.6.  $G'_0(\eta, \rho)$ .

$\eta=0, 1, 5, 10, \rho/2$