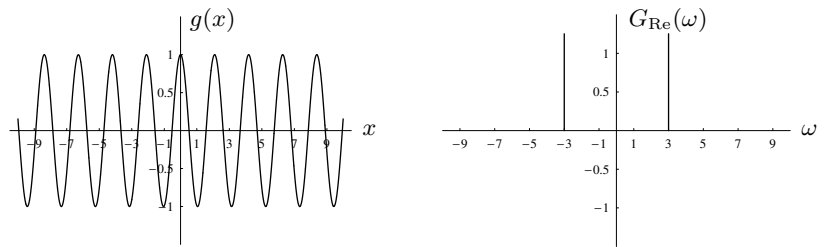
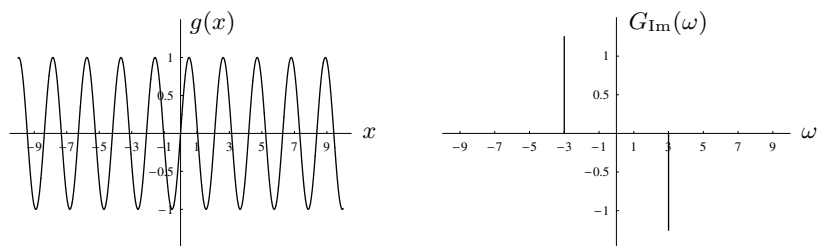


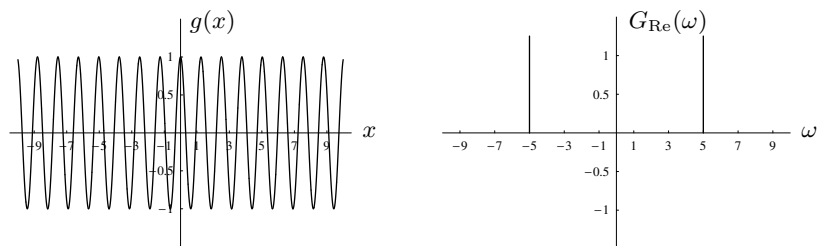
Fig. 13.3
Fourier transform pairs—
cosine and sine functions.



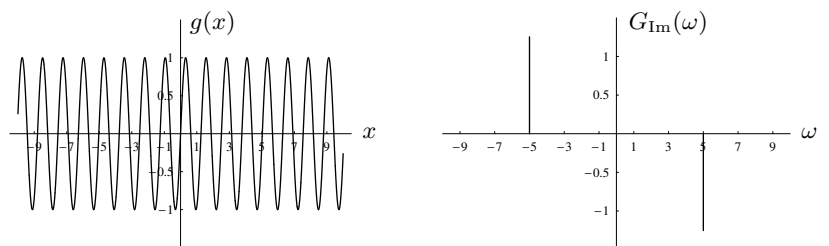
(a) cosine ($\omega_0=3$): $g(x) = \cos(3x)$ $\circ \bullet G(\omega) = \sqrt{\frac{\pi}{2}} \cdot (\delta(\omega+3) + \delta(\omega-3))$



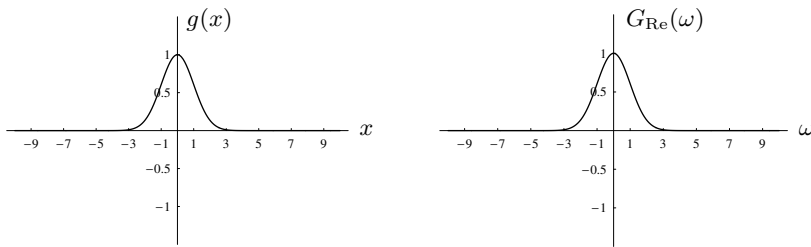
(b) sine ($\omega_0=3$): $g(x) = \sin(3x)$ $\circ \bullet G(\omega) = i\sqrt{\frac{\pi}{2}} \cdot (\delta(\omega+3) - \delta(\omega-3))$



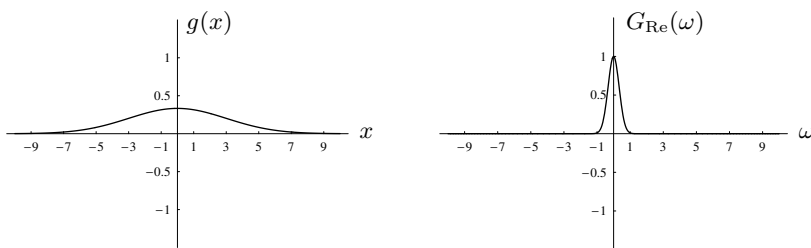
(c) cosine ($\omega_0=5$): $g(x) = \cos(5x)$ $\circ \bullet G(\omega) = \sqrt{\frac{\pi}{2}} \cdot (\delta(\omega+5) + \delta(\omega-5))$



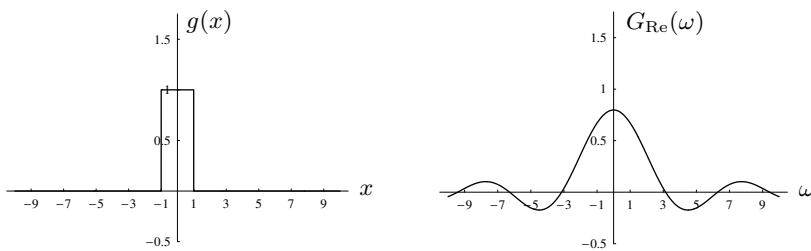
(d) sine ($\omega_0=5$): $g(x) = \sin(5x)$ $\circ \bullet G(\omega) = i\sqrt{\frac{\pi}{2}} \cdot (\delta(\omega+5) - \delta(\omega-5))$



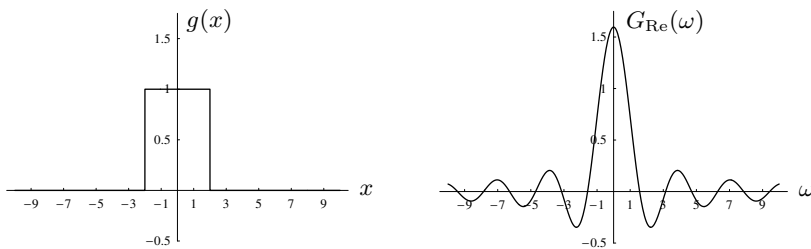
(a) Gauss ($\sigma=1$): $g(x) = e^{-\frac{x^2}{2}}$ $\circ \bullet$ $G(\omega) = e^{-\frac{\omega^2}{2}}$



(b) Gauss ($\sigma=3$): $g(x) = \frac{1}{3} \cdot e^{-\frac{x^2}{2 \cdot 9}}$ $\circ \bullet$ $G(\omega) = e^{-\frac{9\omega^2}{2}}$



(c) rect. pulse ($b=1$): $g(x) = II_1(x)$ $\circ \bullet$ $G(\omega) = \frac{2 \sin(\omega)}{\sqrt{2\pi}\omega}$



(d) rect. pulse ($b=2$): $g(x) = II_2(x)$ $\circ \bullet$ $G(\omega) = \frac{4 \sin(2\omega)}{\sqrt{2\pi}\omega}$

Fig. 13.4
Fourier transform pairs—Gaussian functions and rectangular pulses.