Sovrapposizione di tre onde sinusoidali

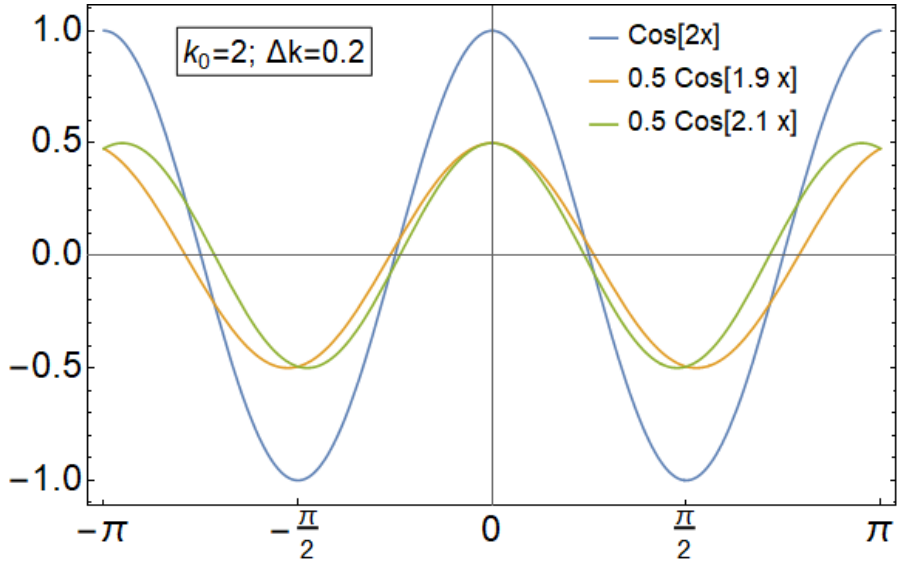
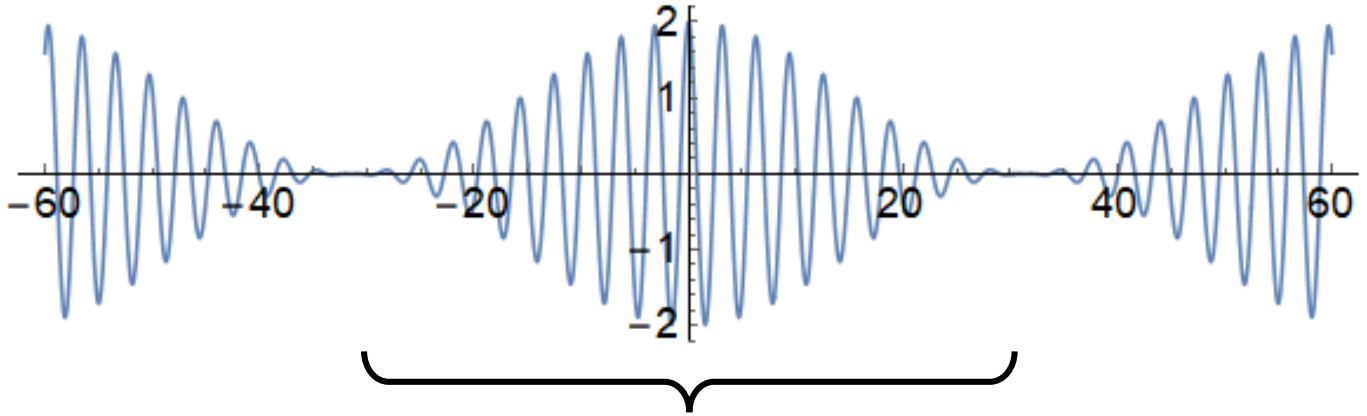
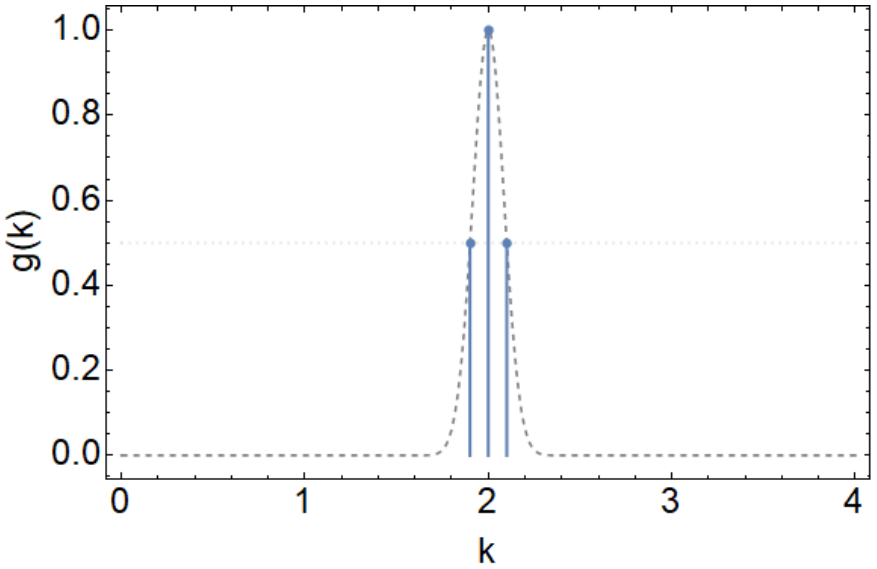


Grafico di $f(x)=\cos(k_0 x)+0.5[\cos((k_0-\Delta k/2)x)+\cos((k_0+\Delta k/2)x)]$





Δk=0.2

Δx=62.8

$\Delta x \Delta k = 4\pi$

Sovrapposizione di tre onde sinusoidali

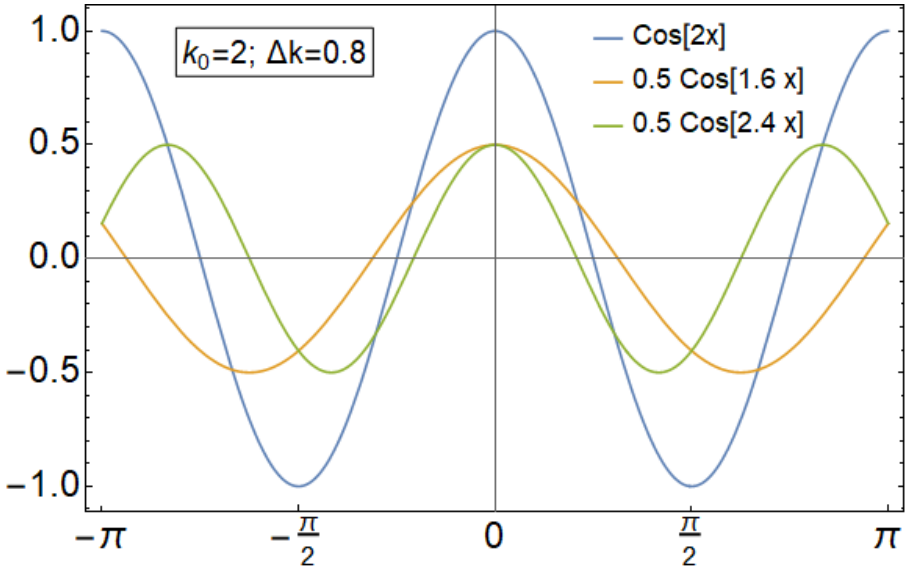
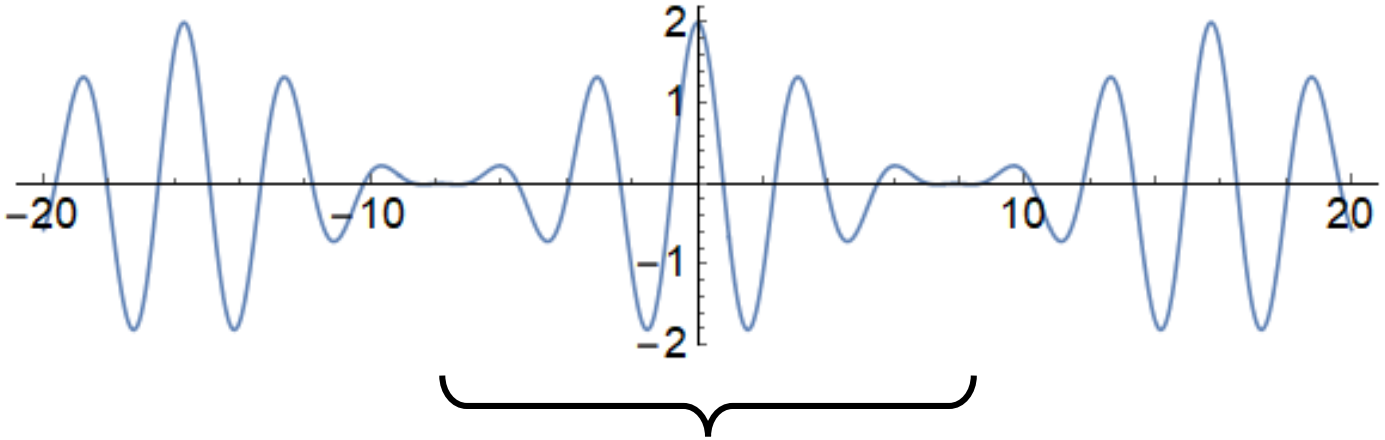
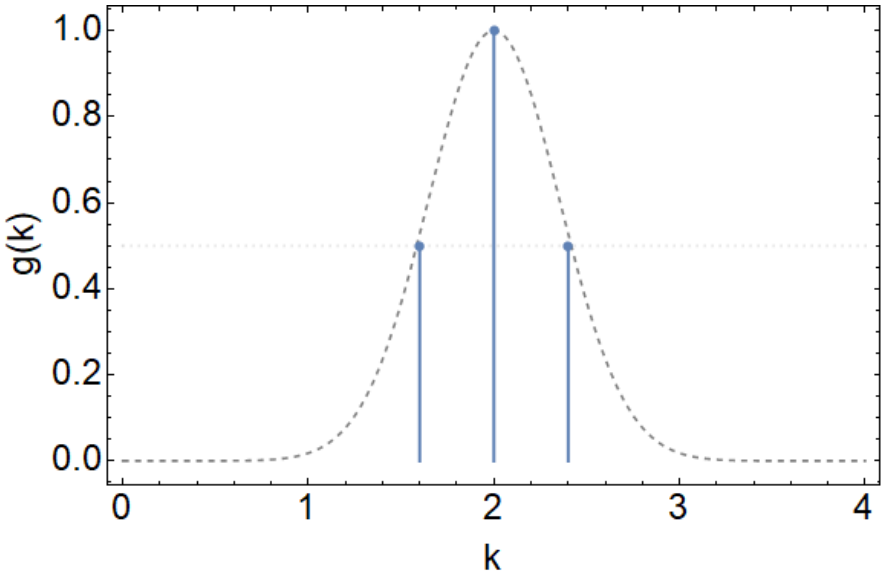


Grafico di $f(x)=\cos(k_0 x)+0.5[\cos((k_0-\Delta k/2)x)+\cos((k_0+\Delta k/2)x)]$





Δk=0.8

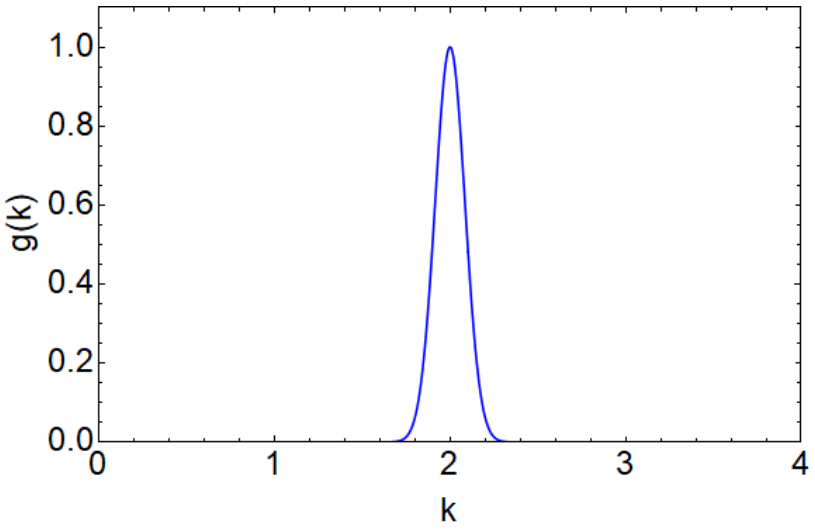
Δx=15.7

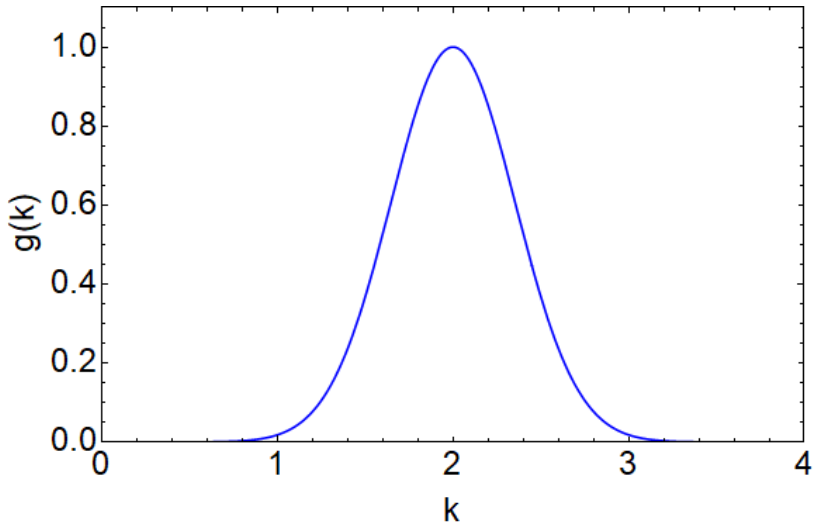
$\Delta x \Delta k = 4\pi$

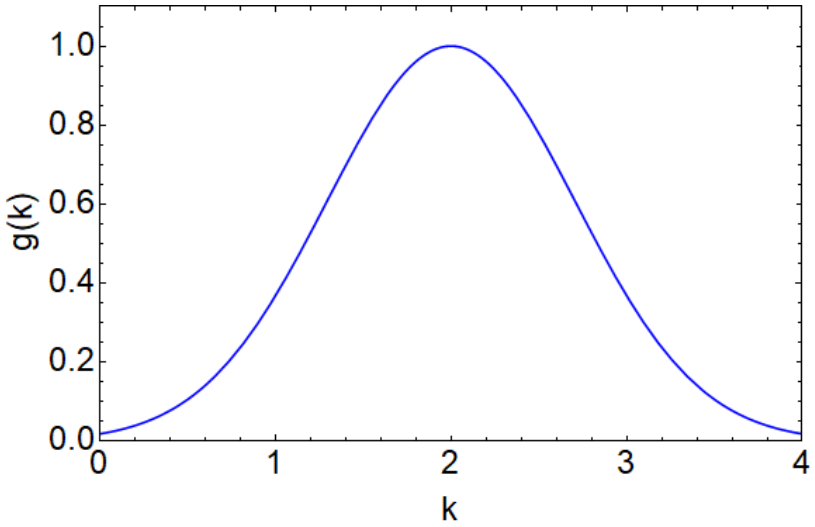
Sovrapposizione di un numero infinito di onde piane: pacchetto d'onde

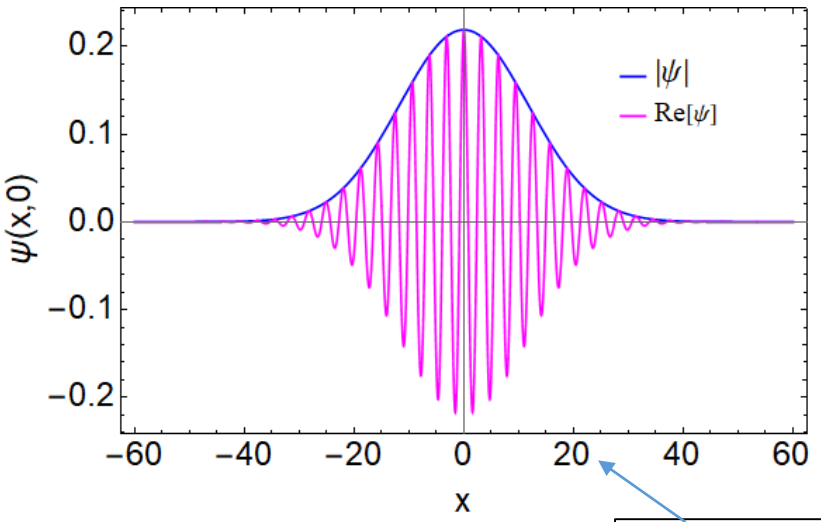
Con g(k) funzione gaussiana.

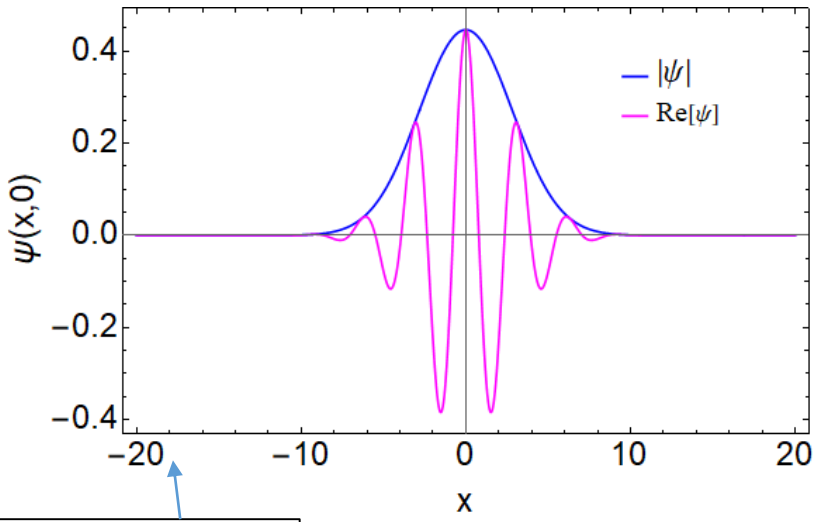
N.B. se la curva è più stretta nello spazio k sarà più larga nello spazio x

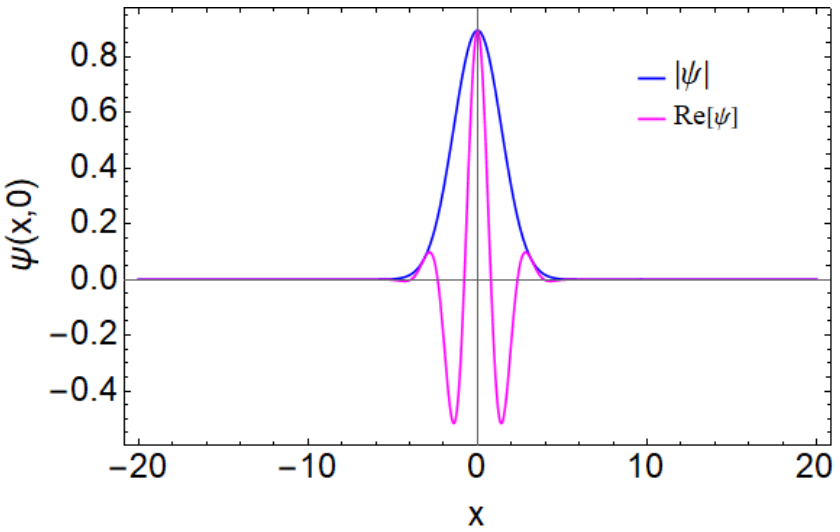






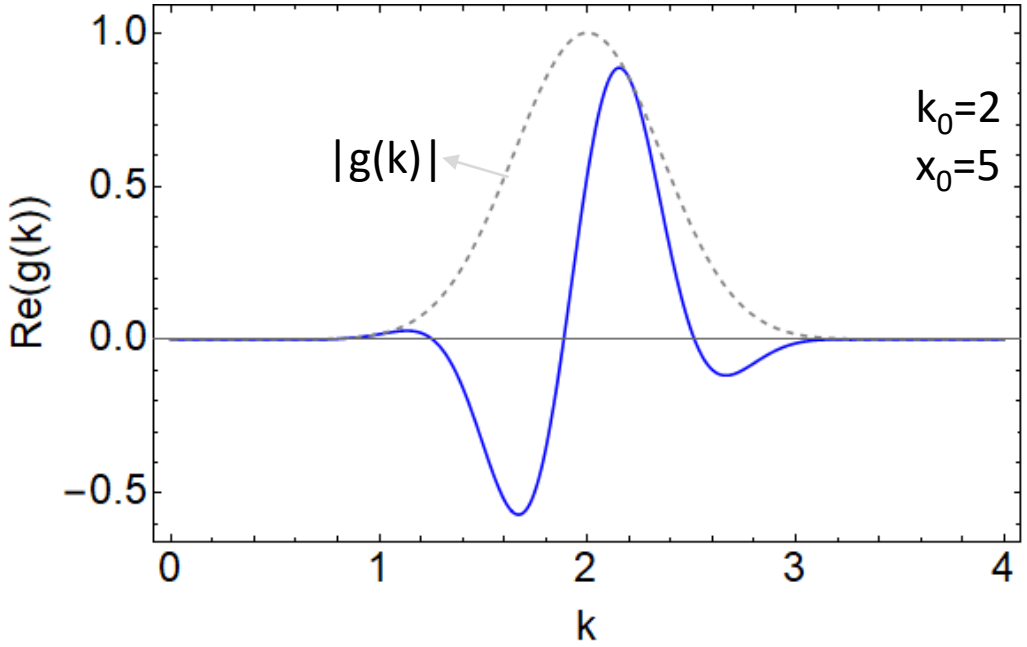






n.b. la scala sull'asse x è diversa

$$g(k)=|g(k)|e^{i\alpha(k)} \approx |g(k)|e^{i(\alpha(k_0)-x_0(k-k_0))}$$



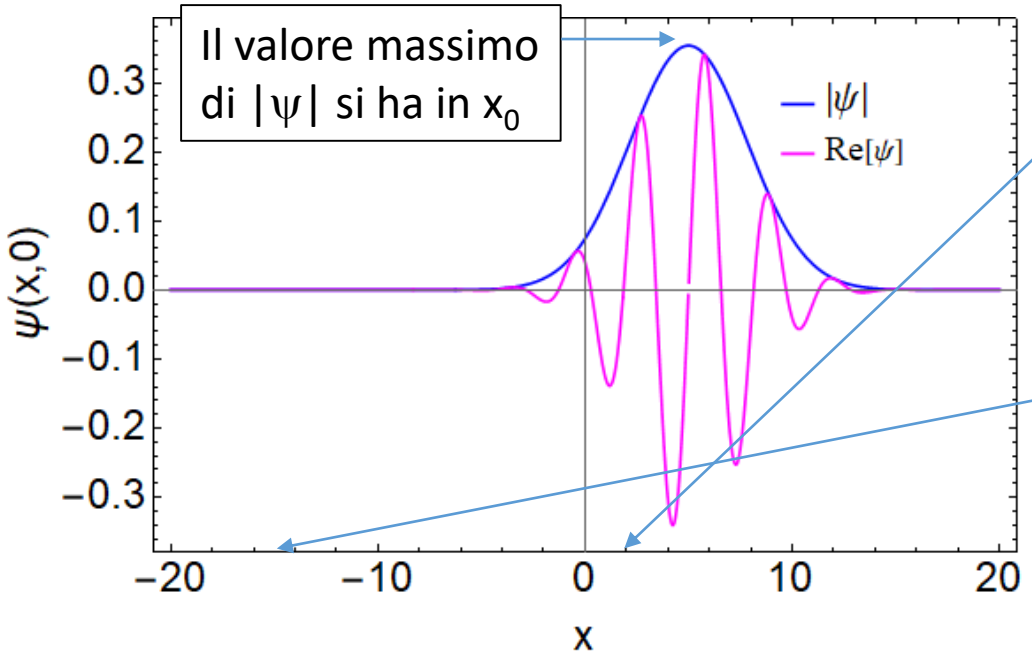


grafico della funzione integranda