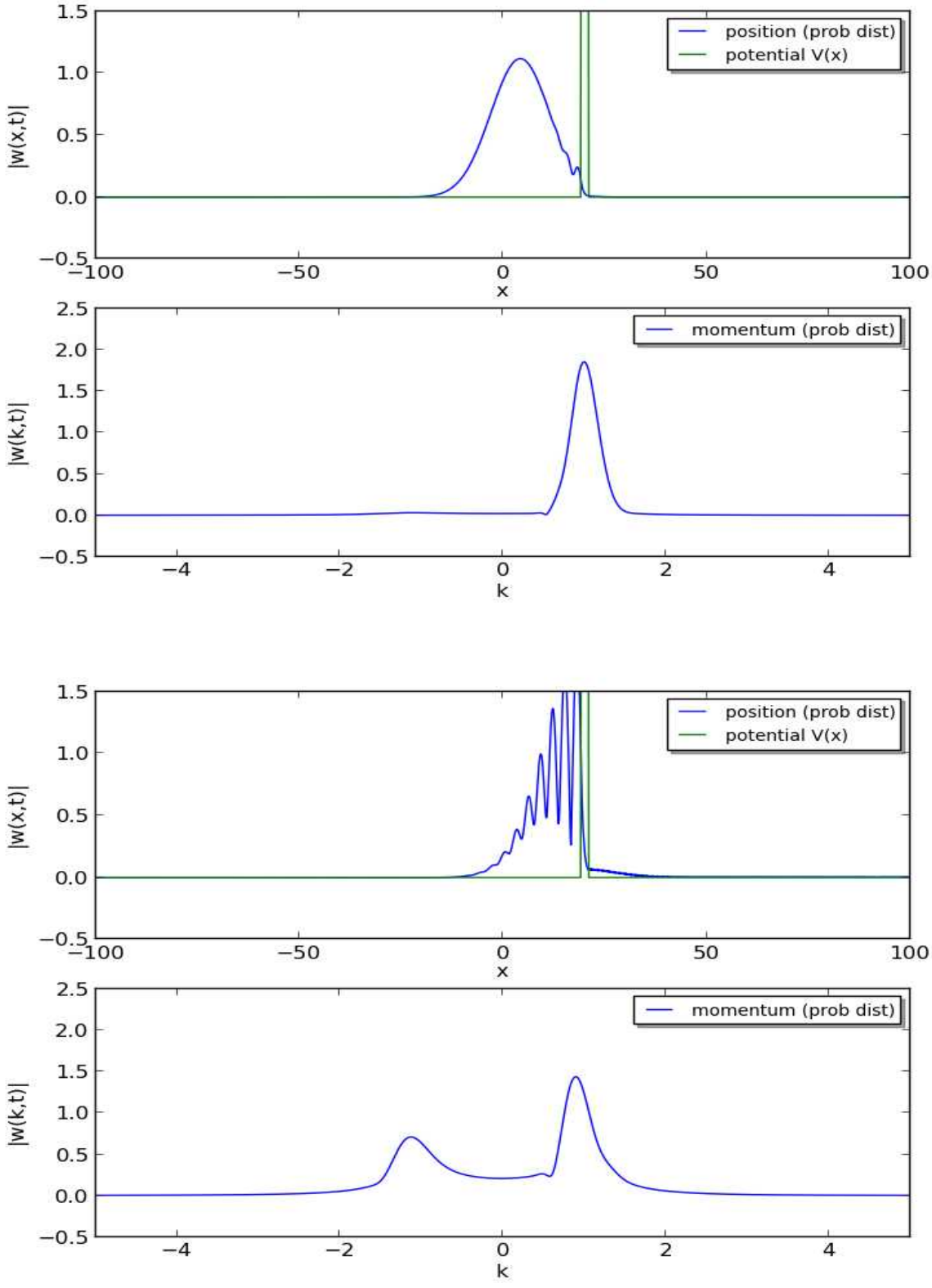
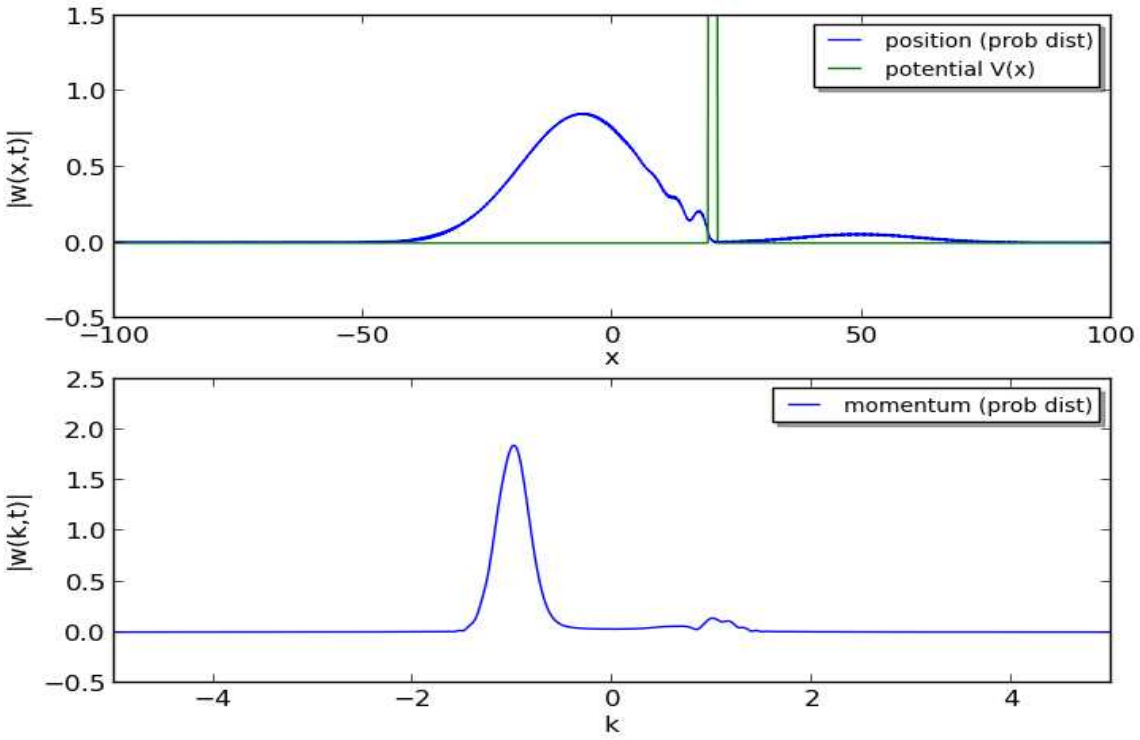
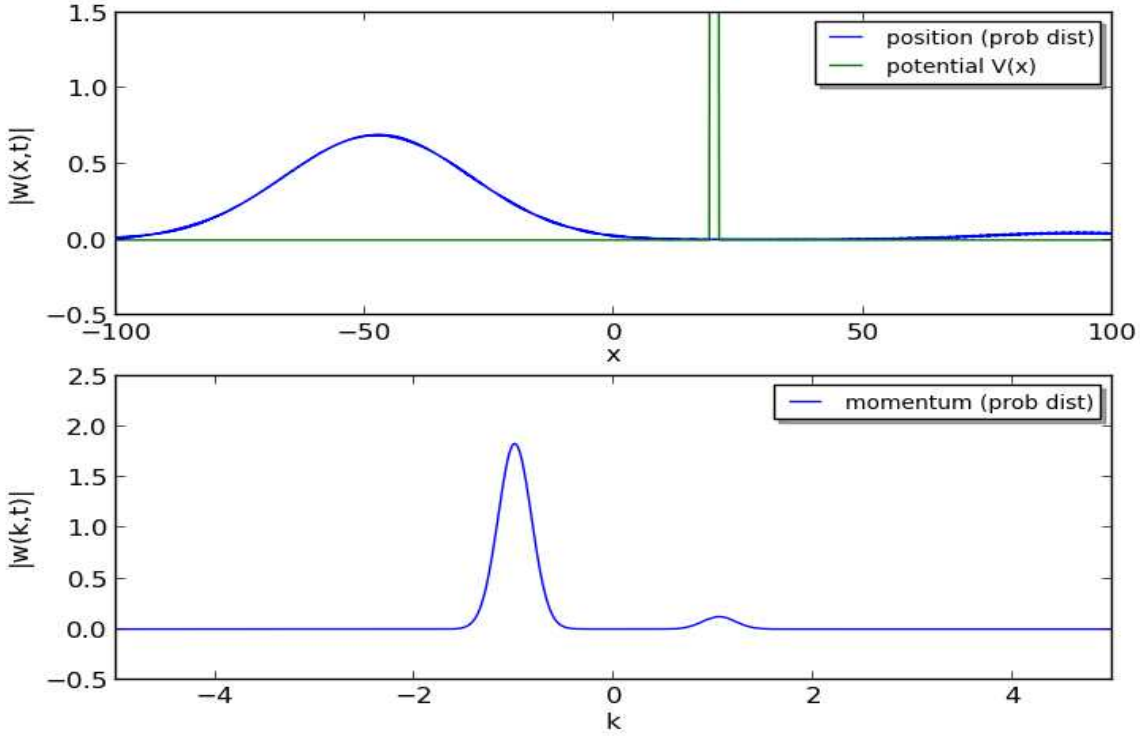
Schroedinger Equation (Problem 37)

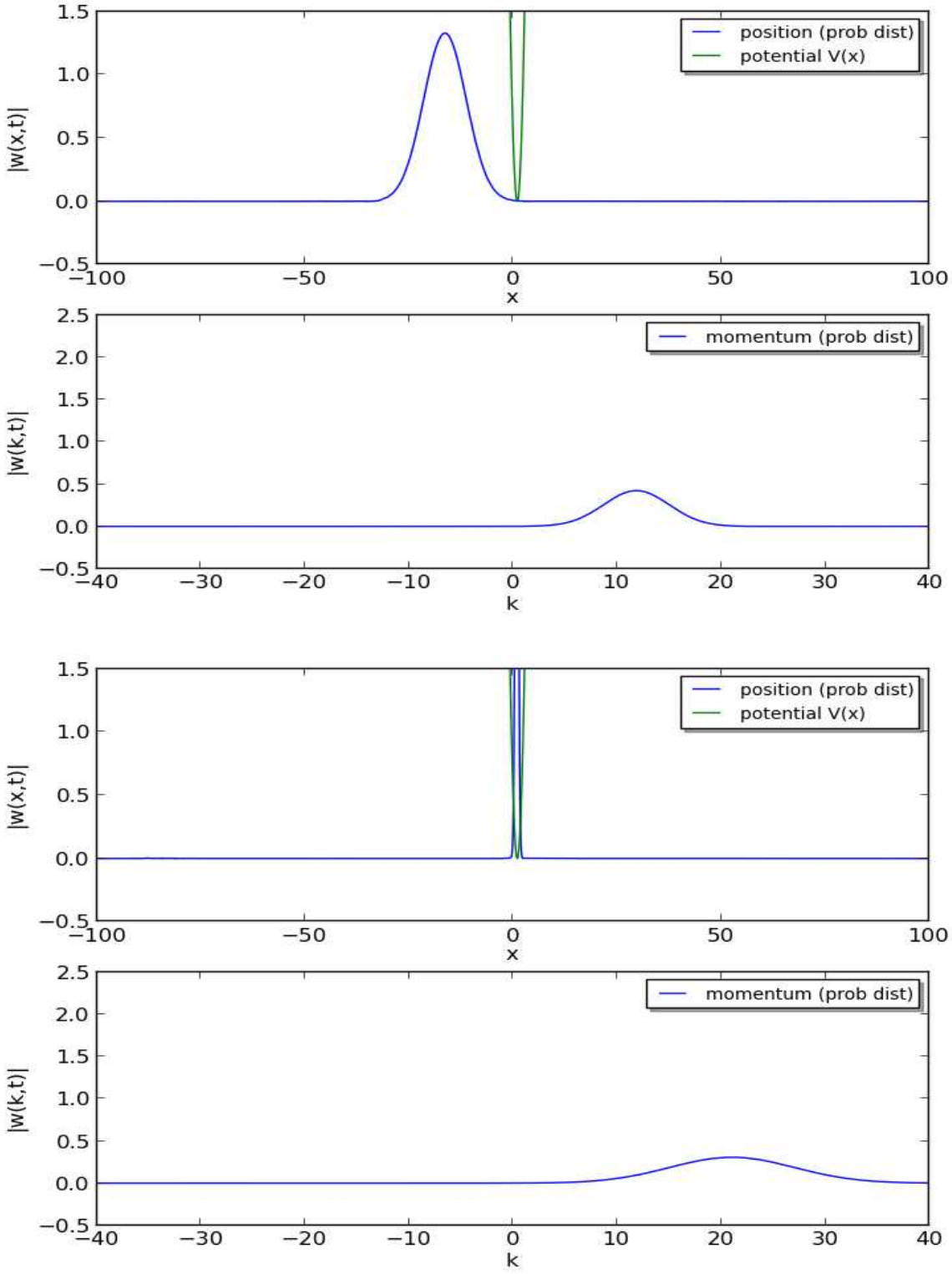
Shows the evolution of the 1D Schroedinger equation for a particle moving from left to right. The first plot shows the probability of measuring the particle at a certain x position. The second plot shows the probability that the particle has a certain momentum. One can see that the particle can pass the **potential barrier** at x=20 with a certain probability (quantum tunneling).

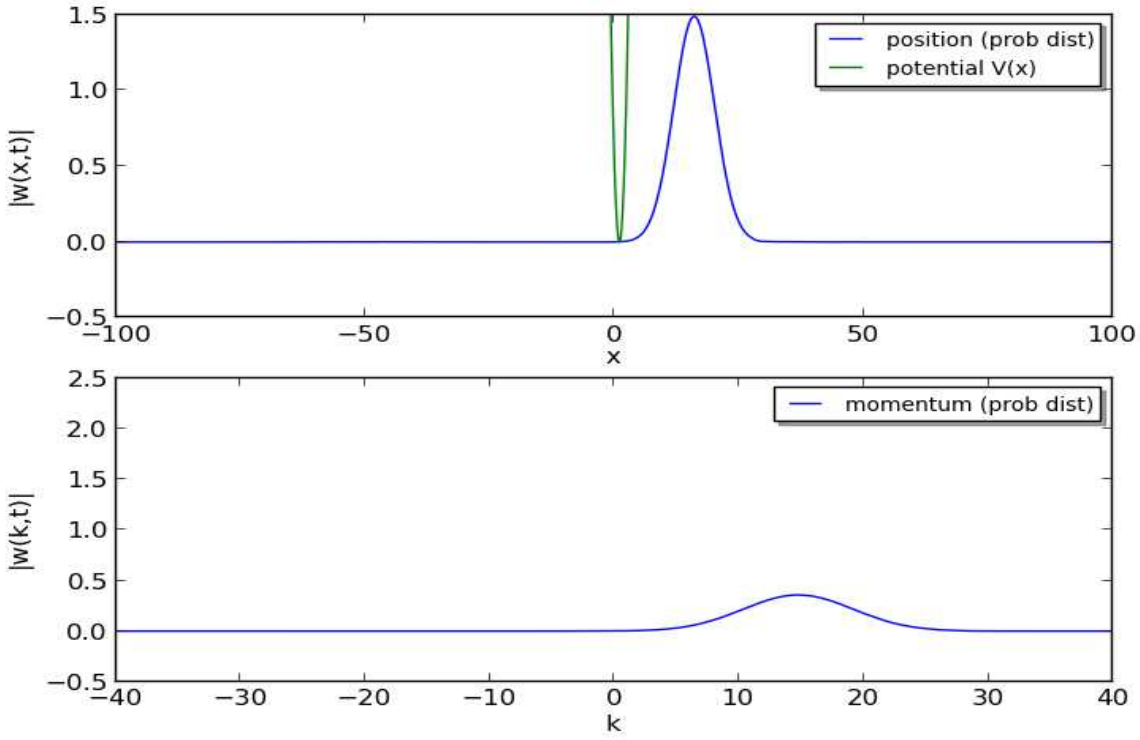


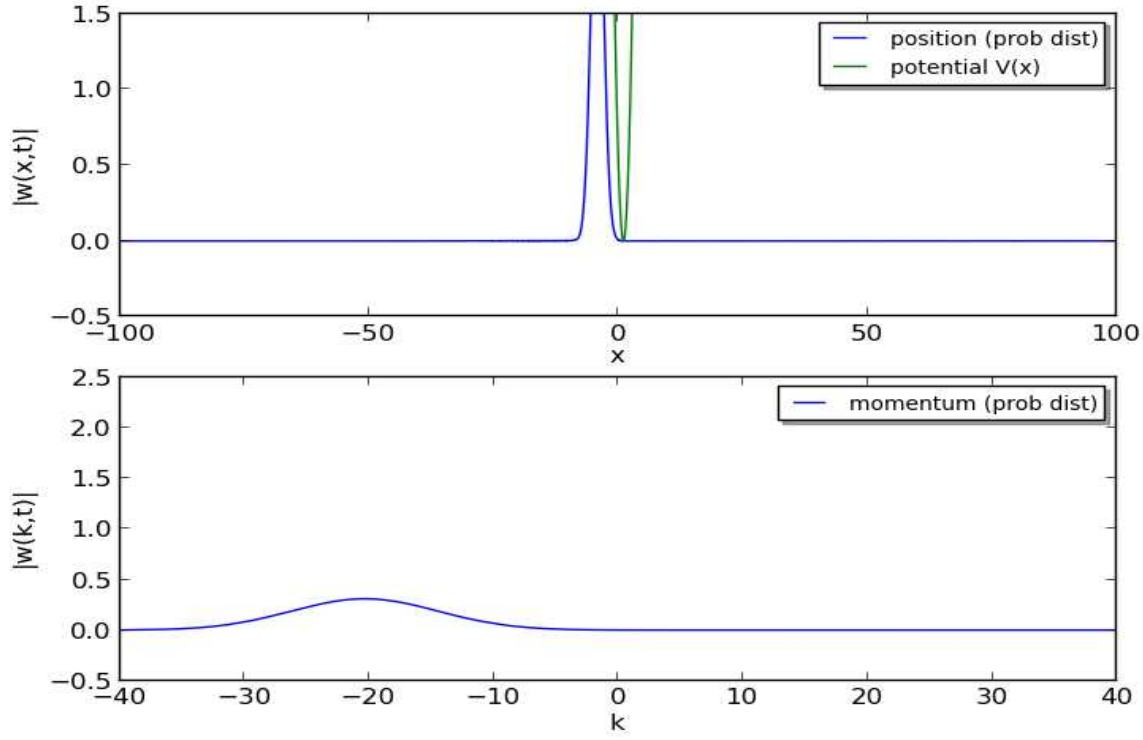

position (prob dist)
potential V(x)
|w(x,t)|
x
momentum (prob dist)
|w(k,t)|
k


position (prob dist)
potential V(x)
|w(x,t)|
x
momentum (prob dist)
|w(k,t)|
k

The next few plots again show a particle moving from left to right. This time influenced by a **double well potential** ($V(x) = 0.5|1-x|^2$) centered at x=1.




position (prob dist)
potential V(x)
|w(x,t)|
x
momentum (prob dist)
|w(k,t)|
k


position (prob dist)
potential V(x)
|w(x,t)|
x
momentum (prob dist)
|w(k,t)|
k