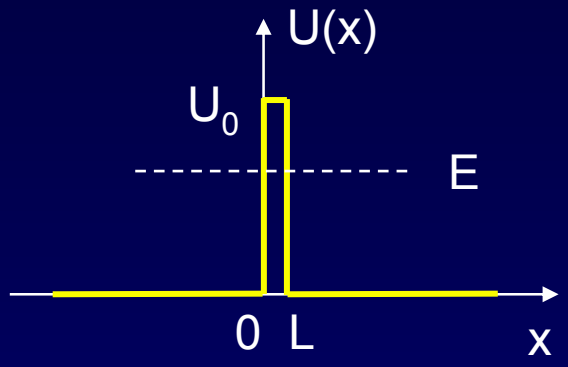
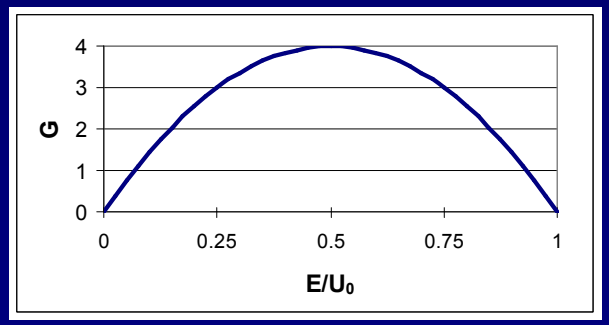
Tunneling Through a Barrier

In many situations, the barrier width L is much larger than the 'decay length' 1/K of the penetrating wave (KL >> 1). In this case $B_1 \approx 0$ (why?), and the result resembles the infinite barrier. The tunneling coefficient simplifies:



$$T \approx Ge^{-2KL} \text{ where } G = 16\frac{E}{U_0}\left(1-\frac{E}{U_0}\right) \qquad K = \sqrt{\frac{2m}{\hbar^2}(U_0 - E)}$$

This is nearly the same result as in the "leaky particle" example! Except for G:



We will often ignore G.
(We'll tell you when to do this.)

The important result is e^{-2KL}.