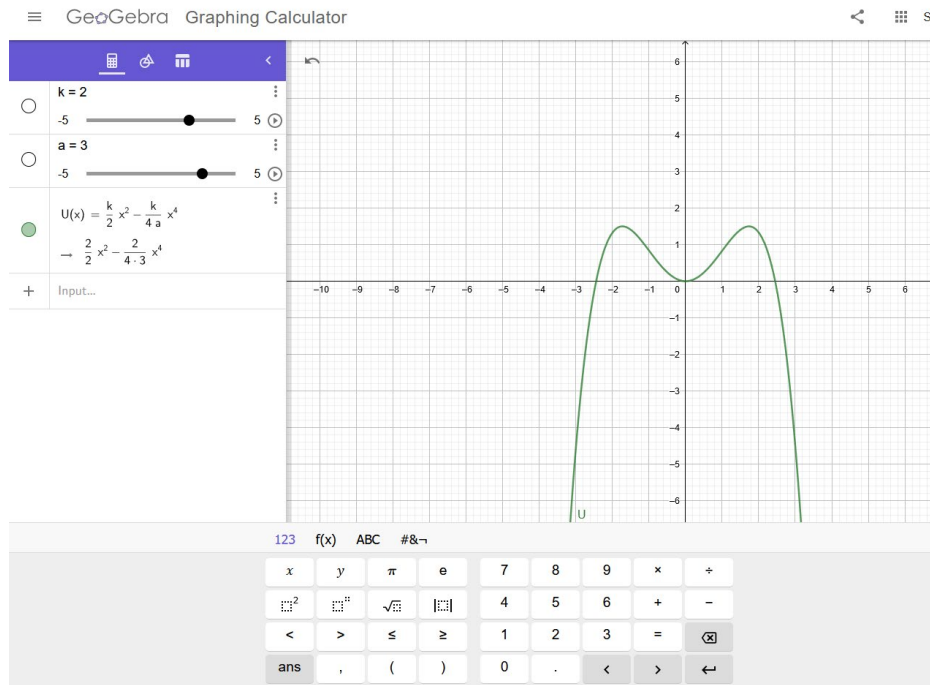


ONLINE GRAPHING

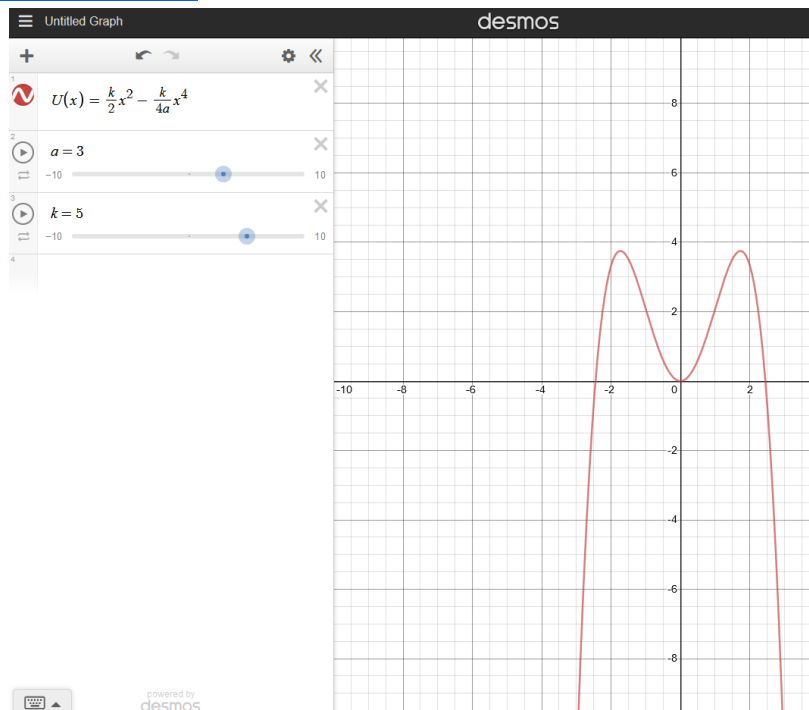
There are two online graphing programs I've used. Here are a couple examples of their use in case you want to start using them. Both have tutorials available.

Example: A particle is under the influence of a force $F = -kx + kx^3/\alpha^2$. Where k and α are constants and k is positive. Determine $U(x)$ and discuss the motion using computer plots of $F(x)$ and $U(x)$. What is the situation and what will occur when $E = (1/4)k\alpha^2$?

<https://www.geogebra.org/graphing>



<https://www.desmos.com/calculator>



This shows that the effect of adding a phase constant, $\pi/2$ effectively shifts the vertical axis to the left (toward negative x).

Green line is the plot of $2\sin(x)$ which is zero at $x = 0$ and initially increases as x increases

Blue line is the plot of $2\sin(x + \pi/2)$ which is maximum at $x = 0$ and initially decreases as x increases so it's the cosine function.

