Concepts of Energy

$KE_o + U_o = KE_f + U_f$

This equation assumes $W_{NC} = 0$ (friction, air resistance)

To take non-conservative forces into account:

$KE_o + U_o + W_{NC} = KE_f + U_f$

Mainly care about how energy changes:

$U_{gA}, U_{gB} => \Delta U = U_{gB} - U_{gA}$

A negative U is okay

KE should not be negative

$E = -\frac{3}{4}J = \frac{1}{2}mv^2$

$W = \Delta KE$

For $\frac{1}{2}mv^2$ to be negative, $m < 0$ or $v = i$, not possible