Understanding Net Work

1) You should already know that **work = energy.**

   W = E

   Work either adds or takes away energy from an object. If an object speeds up, positive work (a force) was done on the object. If an object slows down, negative work (like friction) was done on the object.

2) So, (from what we just talked about)

   $W_{net} = \Delta E$.

   The net work done on any object MUST equal the change of energy of the object. If you lift an object off the ground, you give the object Ep. It doesn't matter if another force was opposing you or not. The energy given to the object equals the Ep it gained. So, the net work done equals that Ep. In this case: W_{net} = Ep, but the energy that was gained could be kinetic or elastic, etc.

   $W_{net} = \Delta E = E_{k\ gained}$ OR = $E_{p\ gained}$ OR = PE_{gained}

3) You can also find W_{net} by adding up all of the individual works done on the object (done by different forces).

   Wnet = $W_1 + W_2 + W_3$ …(etc.)

   If you do positive work on an object and friction does negative work, add these two quantities up and you will have your net work.

4) Put it all together:

   Wnet = $W_1 + W_2 + W_3$ …= ΔE

   By using this combined equation, we can solve more complex problems.
   Put in what you are given and solve for your unknown.

   Ex.1: If you knew ΔE, you would know Wnet.
   Ex. 2: If you knew ΔE and one of your works, you could find if there was any other works done on the object.
   Ex. 3: If you knew all the individual works done on the object, you could find the ΔE OR W_{net} done on the object.