In advanced mechanics, there are several things on which I am still a little confused:

Euler originally drafted the equation

$Q_k = \frac{d}{dt}\frac{\partial T}{\partial \dot{q}} - \frac{\partial T}{\partial q}$

Whereas we use Lagrange's equation

$0 = \frac{d}{dt}\frac{\partial L}{\partial \dot{q}} - \frac{\partial L}{\partial q}$ where L = T – V to solve for equations of motion.

Do we use the Euler equation for anything specific?

Well I was very confused, what I needed was Euler's second equation:

$$f - \frac{\partial f}{\partial \dot{q}}\dot{q} = constant$$

I am also confused when we have non-holonomic equations where the energies depend on $\dot{\vec{r}}$ such as frictional forces, how does this change the Lagrange equations?

So for non-holonomic equations we set the Lagrange = Q_k instead of 0.

where $Q_k = \sum F_i \cdot \frac{dr_i}{dq_k}$

Finally, I am very confused by the δ operator when it is used in conjunction with an integral such as Hamilton's equation

$\delta \int_{t1}^{t2} L dt = 0$. Why δ and not just d?

In this case δ was a special derivative dealing with the Calculus of variations where $y = f(x, \alpha)$.