Parallels between momentum and energy (algebra-based physics)

Impulse and momentum	**Work and energy**
$\vec{\mathbf{p}} := m\vec{\mathbf{v}}$	$K := \frac{1}{2}mv^2$
$\Delta\vec{\mathbf{J}}_\mathrm{F} := \vec{\mathbf{F}}_\mathrm{AVG}\,\Delta t$ $\Delta J_{\mathrm{F},x} = F_{x,\mathrm{AVG}}\,\Delta t$ $\Delta J_{\mathrm{F},x} =$ Signed area under graph of F_x vs. t $\Delta J_{\mathrm{F},y} = F_{y,\mathrm{AVG}}\,\Delta t$ $\Delta J_{\mathrm{F},y} =$ Signed area under graph of F_y vs. t	$\Delta W_\mathrm{F} := F_{\parallel,\mathrm{AVG}}\Delta\ell = (F\cos\theta)_\mathrm{AVG}\,\Delta\ell$ $\Delta W_\mathrm{F} =$ Signed area under graph of $F_\parallel$ vs. ℓ $[W] = \mathrm{N\cdot m} = \mathrm{J}$
$\vec{\mathbf{p}}_i + \overbrace{\sum_\mathrm{F}\Delta\vec{\mathbf{J}}_\mathrm{F}}^{\Delta\vec{\mathbf{J}}_{\Sigma\vec{\mathbf{F}}}} = \vec{\mathbf{p}}_f$	$K_i + \sum_\mathrm{F}\Delta W_\mathrm{F} = K_f$ If system has no internal degrees of freedom, $\sum_\mathrm{F}\Delta W_\mathrm{F} = \Delta W_{\Sigma\vec{\mathbf{F}}}$.
$\vec{\mathbf{F}}_\mathrm{AVG} = \frac{\Delta\vec{\mathbf{J}}_\mathrm{F}}{\Delta t} = \frac{\Delta\vec{\mathbf{p}}_\mathrm{F}}{\Delta t}$	$P_{\mathrm{F,AVG}} := \frac{\Delta W_\mathrm{F}}{\Delta t}$ $P_\mathrm{F} = (F\cos\theta)v$ $[P] = \frac{\mathrm{J}}{\mathrm{s}} = \mathrm{W}$
	$-\Delta U_{\mathrm{F},1\ldots N} := \Delta W_{\mathrm{F},2\to1} + \Delta W_{\mathrm{F},1\to2} + \cdots + \Delta W_{\mathrm{F},N-1\to N}$ $F_{x,\mathrm{AVG}} = -\frac{\Delta U_\mathrm{F}}{\Delta x}$ $\Delta U_\mathrm{G} = mg\Delta h$ $\Delta U_\mathrm{S} = \frac{1}{2}k(\Delta x)^2$
$\Sigma\vec{\mathbf{p}}_i + \overbrace{\sum_{\mathrm{EXT}\to\mathrm{SYS}}\Delta\vec{\mathbf{J}}_\mathrm{F}}^{\Delta\vec{\mathbf{J}}_{\Sigma\vec{\mathbf{F}},\mathrm{EXT}\to\mathrm{SYS}}} = \Sigma\vec{\mathbf{p}}_f$	$\overbrace{\Sigma K_i + \Sigma U_{\mathrm{G},i} + \Sigma U_{\mathrm{S},i}}^{ME_{\mathrm{SYS},i}} + \Sigma\Delta W_\mathrm{OUF} = \overbrace{\Sigma K_f + \Sigma U_{\mathrm{G},f} + \Sigma U_{\mathrm{S},f}}^{ME_{\mathrm{SYS},f}} + \Sigma\Delta U_\mathrm{INT}$