TURBO
WORK, ENERGY AND POWER
Class 11 Physics • Complete Formula Sheet

Sr.	Concept	Formulas	Other Information
1	Work Done	$W = \vec{F} \cdot \vec{s} = Fs\cos\theta$ $W = \int_{s_1}^{s_2} \vec{F} \cdot d\vec{s}$	$1J = 10^7 erg.$ $1kWh = 3.6 \times 10^6 J.$
2	Kinetic Energy	$K = \frac{1}{2}mv^2 = \frac{p^2}{2m}$	p: linear momentum.
3	Work-Energy Thm	$W_{net} = \Delta K = K_f - K_i$	Valid for all force types.
4	Potential Energy	Gravitational: $U = mgh$ Spring: $U = \frac{1}{2}kx^2$	$F_{spring} = -kx.$
5	Conservative Force	$\vec{F} = -\vec{\nabla}U = -\frac{dU}{dr}\hat{r}$	Work independent of path.
6	Power	$P = \frac{dW}{dt} = \vec{F} \cdot \vec{v}$	Units: Watt, hp (1 hp = 746 W).