Answer on Question#45034, Physics, Other

Moving with non-zero speed, object has kinetic energy $\frac{m v^2}{2}$. While stopped, it has no kinetic energy. According to work-energy principle, work is equal to difference of final and initial energies: $W = T_{final} - T_{initial} = \frac{m v_f^2}{2} - \frac{m v_i^2}{2}$.

In our case, $W = 0 - \frac{m v^2}{2} = -\frac{10\,kg \cdot 9^2 \frac{m^2}{s^2}}{2} = -405\,J$ (the minus sign means that the work was on this object). Hence, work $405\,J$ was done on this object to stop it.