ELECTRIC POTENTIAL

Electric work $W_e = F_e \ ds \ cos(\text{angle})$

EXAMPLE: a small charge $q$ with a force $F_e = \frac{kQq}{R^2}$

$$W_e = \int \frac{kQq}{R^2} \ dR$$

$$W_{1-2} = \frac{kQq}{R_2} - \frac{kQq}{R_1} = q \left( \frac{kQ}{R_2} - \frac{kQ}{R_1} \right) = q \left( V_2 - V_1 \right)$$

$V = \text{electrical potential} = \frac{\pm kQ}{R}$ due to a single + or − source charge

FOR several source charges, the electric potentials, $V_i$, add algebraically

So that $V = \sum_{i=1}^{n} \frac{kQ_i}{R_i}$