

**if you do 100 J of work to elevate a bucket of water, what is its gravitational potential energy relative to its starting point. Please give detailed answer**

All work you done will used to change a bucket's potential energy. So, change of its potential energy is:

$$\Delta W = W_2 - W_1 = A$$

Relative to its ( $W_1 = 0$ ) initial position potential energy will equal to:

$$W_2 = A$$

$$W_2 = 100J$$

**Answer:**  $W_2 = 100J$