Answer on Question #40204, Physics, Mechanics | Kinematics | Dynamics

Question:

A force =A=(x/a -1) is acting on a particle along the x -axis. Determine the work done by the force in moving the particle from x=0 to x=2a

Answer:

Mathematically, work can be expressed by the following equation:

$$W = \int F dx$$

where F is force, x is displacement.

Therefore:

$$W = \int_0^{2a} \left(\frac{x}{a} - 1\right) dx = \left(\frac{x^2}{2a} - x\right)|_0^{2a} = 2a - 2a = 0$$

Answer: 0