Work and Kinetic Energy

Starting with the 2nd Newton's Law:

$$F = ma$$

One can derive another important result:

"Change in kinetic energy is equal to the mechanical work done by all forces"

$$\Delta K = W$$

$K = \frac{mv^2}{2}$, is called Kinetic Energy of an object

$W = F\Delta x$, is called Mechanical Work

(Work = Force x Displacement)

Homework

A bicyclist is moving at constant speed 10 m/s on a flat road. There is an air resistance force acting on him which is F=100 Newtons, directed backward (called air drag).

a) What is the total work done by the air drag force in 1 minute?
b) What is the work done by the bicyclist over the same time (assuming there is no other losses except of the air drag)?