m long. How much work is done in ploughing the length of the field?

Ans. Work done W = F x d
= 140 N x 15 m = 2100 J

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1. What is the kinetic energy of an object?

Ans. The kinetic energy of an object is a kind of mechanical energy and it is present in that object due to its state of motion(movement).

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2. Write an expression for the kinetic energy of an object.

Ans. Kinetic energy = $\frac{1}{2}mv^2$

where, m = mass of the object, v = velocity of the object(motion)

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3. The kinetic energy of an object of mass, m moving with a velocity of $5\ m\ s^{-1}$ is 25 J. What will be its kinetic energy when its velocity is doubled? What will be its kinetic energy when its velocity is increased three times?

Ans. K.E. of the object = $\frac{1}{2}\times m\times 5^2$

$$25 = \frac{1}{2}\times m\times 25$$

$m = (25\times 2)/25$ = 2 kg

If velocity is doubled

$K.E. = \frac{1}{2}\times 2\times 10^2$ = 200/2 = 100 J i.e. K.E. will become four times

If velocity is increased three times