Solution: Fig 1 represents the graph between the force applied by woman vs displacement.
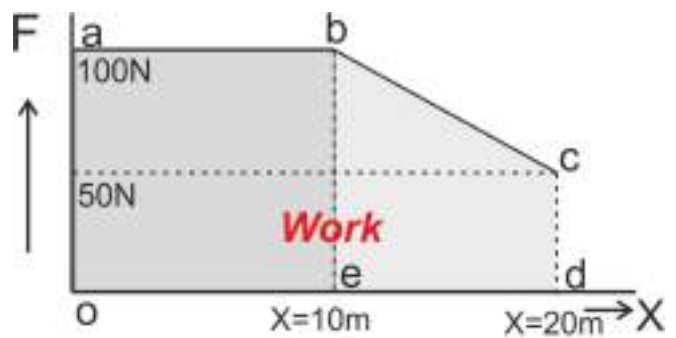

Fig 1

Fig 2 represents the graph between the frictional force (negative force) vs displacement.
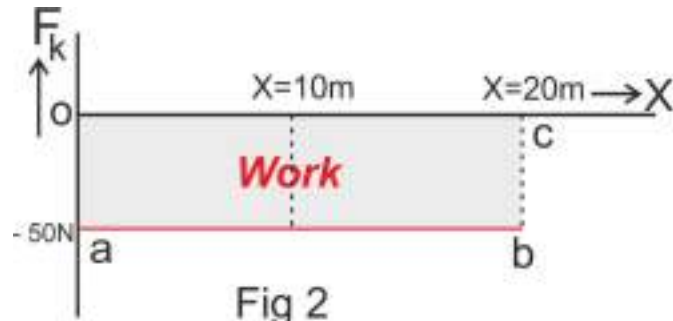

Fig 2

Work done by woman = area under the graph in Fig 1

= area of rectangle abeo + area of trapezium bcde

$$= oa \times ab + \left(\frac{be + cd}{2}\right) \times ed = 100 \times 10 + \left(\frac{100 + 50}{2}\right) \times 10$$

= 1000 + 750 = 1750J

Work done by frictional = area under the graph in Fig 2

= area of rectangle abco

= (-50) x 20 = -1000J