**WORK**

1. Find the work done when a box is pushed 10 across a floor with a constant speed against a frictional resistance of 24 N.
2. A force of 20 N acts on a 3 kg roller skate initially at rest on a frictionless table. The skate travels 5 m while the force acts.

(a) How much work is done?

(b) What is the final speed of the skate?

1. How much work is done when a 250 N force moves a mass of 12 kg a distance of 15 m in the direction of the force?
2. How much work is done in changing the velocity 9 of a vehicle of mass 2 000 kg from 10 m/s to 40 m/s if the change occurs in 200 m?
3. How much work is done in stopping a vehicle of mass 5 000 kg in 100 m if the brakes apply a force of 1 000 N?
4. A body of mass 50 kg moving with a speed of 10 m/s is brought to rest by a constant force in a distance of 5.0 m. Calculate the work done by the force.
5.  force acts on a stationary vehicle of mass 3 000 kg for 20 seconds. In that time the vehicle moves 50 m and its velocity increases to 5 m/s 
6. What force acts on the vehicle?
7. How much work is done by the force?
8. How much work does a man who weighs 60 kg do against gravity when he climbs a 700 m hill?
9. How much work is done in pumping 4 000 litres of water from a depth of 15 m? The mass of a litre of water is 1 kg. (1 litre = 1 kg)
10. 100 J of energy are used to move a stationary box of mass 10 kg through a distance of 15 m in 5 seconds. Find the force used.

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| 1.  2 .  3.  4.  5 . | 240 J  (a) 100J  (b) 8.16 ms  3 750 J  12 000 000 J or 1.2 x 107  1 000 000 |  | 6. 2 500 J   1. (a) 750 N   (b) 37 500 J  8. 412 000 J  9. 588 000 J  10. 6.67 N |

CHÄLLENGE : A 1 kg mass is slowly raised to a height of 10 m in 20 seconds. How much extra work is required if the lifting occurs in 1 second.