

Questions **Work**

Equation:

$$\text{Work} = \text{Force} \times \text{Distance}$$

Work & Machines

$$\text{Work Input} = \text{Force Input} \times \text{Distance Output}$$

$$\text{Work Output} = \text{Force Output} \times \text{Distance Output}$$

1. It takes 50 N of force to move a box 5 m. How much work is done?
2. It takes 500 J to lift a box onto a shelf 1 m high. What force was applied?
3. How much work must a 800 N sprinter do in a 100 m dash?
4. A stack of books weighs 50 N. How much work would it take to move the books across a 10 m room?
5. Sammy Sosa used 1200 J of energy to hit a homeroom 120 m. How much force did Sosa exert?
6. A 1000 N bar accidentally fell on your friend's leg. You have to lift it 20 cm so your friend can escape. How much work will you have to do to save the day?
7. It takes 400 N to push a box up an inclined plane. The height of the inclined plane is 2 m. What is the work input done on the inclined plane?
8. Tommy must input 80 J of work to screw a screw into a board 2 cm. How much force does Tommy need to apply?
9. A cyclist exerts 400 N of force to move the bike 10 m. What is the work output of the bike?
10. An axe accomplishes 200 J of work when it is swung 1 m. What is the force provided by the axe?
11. When a bike moves 1 km. The cyclist must exert 10 000 N of force so the bike can provide 6 000 N of force. What is the work input and the work output of the bike?
12. A mover uses a pulley to exert 2 000 N of force to move a piano 8 m high to the top floor of a house. The pulley provides a force of 1 500 N. What is the difference between the work input and the work output?