

Science 10 Chapter 4
Work Formula Practice

1. While bench pressing, you lift a barbell that weighs 345 N a distance of 35 cm. How much work do you do on the barbell?
2. Gravity exerts a force of 650.0 N on a skydiver over a distance of 3580 m. How much work does gravity do on the skydiver?
3. A forklift exerts a force of 9800 N on a load while lifting it a distance of 0.45 m. The forklift then carries the load, at a constant speed, a distance of 175 m across the warehouse to a truck.
 - (a) How much work does the forklift do on the load while lifting it?
 - (b) How much work does the forklift do on the load while carrying it across the warehouse? (Hint: What is the direction of the force that the forklift exerts on the load relative to the direction of the motion?)
4. A crane does 4114 J of work while lifting a 1766 N statue onto a pedestal. How high does the crane lift the statue?
5. A helicopter scoops a load of water out of a lake, to dump on a forest fire. The helicopter exerts 6480 N of force on the water while rising high enough to fly over a mountain. If the helicopter does $1.62 \cdot 10^6$ J of work on the water while lifting it, how high does it lift the water.
6. Warehouse workers have to slide a large crate a distance of 2.2 m across a floor to make room for the forklift to pick up the crate. If the workers do 2850 J of work on the crate while pushing it, what force do they exert on the crate?
7. Furniture movers lift a piano 5.0 m to the back of a truck. The work done by the movers on the piano is 460 J. Calculate the force exerted by the movers.