

**Calculating work:** As stated earlier, work has a special meaning in science. It is the product of the force applied to an object and the distance the object moves. The unit of work is the called the joule (J). Here is the formula for calculating the amount of work done. This is a formula you may need to use on the GED 2014 science module.

$$\begin{aligned} \text{Work} &= \text{Force} \times \text{Distance} \\ W &= F \times d \\ \text{Force} &= \text{Newtons} \\ \text{Distance} &= \text{meters} \end{aligned}$$

Solve the following problems with the formula for work. The first one is done for you.

- 1) Aimee uses 20N of force to push a lawn mower 10 meters. How much work does she do?

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

$$\text{Work} = 20\text{N} \times 10\text{m}$$

$$\text{Work} = 200 \text{ J}$$

- 2) How much work does an elephant do while moving a circus wagon 20 meters with a pulling force of 200N?
- 3) A 900N mountain climber scales a 100m cliff. How much work is done by the mountain climber?
- 4) Shawn uses 45N of force to stop the cart 1 meter from running his foot over. How much work does he do?
- 5) How much work is done when a force of 33N pulls a wagon 13 meters?

- 6) How much work is required to pull a sled 5 meters if you use 60N of force?
- 7) Derrick does 15 Joules of work to push the pencil over 1 meter. How much force did he use? (hint: solve the problem with division)
- 8) Angela uses a force of 25 Newtons to lift her grocery bag while doing 50 Joules of work. How far did she lift the grocery bags?
- 9) The baseball player does 1234 Joules of work when hitting a baseball into left field. Assuming the baseball landed 100 meters away from home plate, how much force did the player use to hit the ball?

10) Write your own word problem for your classmates to work on.

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11) Write your own word problem for your classmates to work on.

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12) Write your own word problem for your classmates to work on.

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