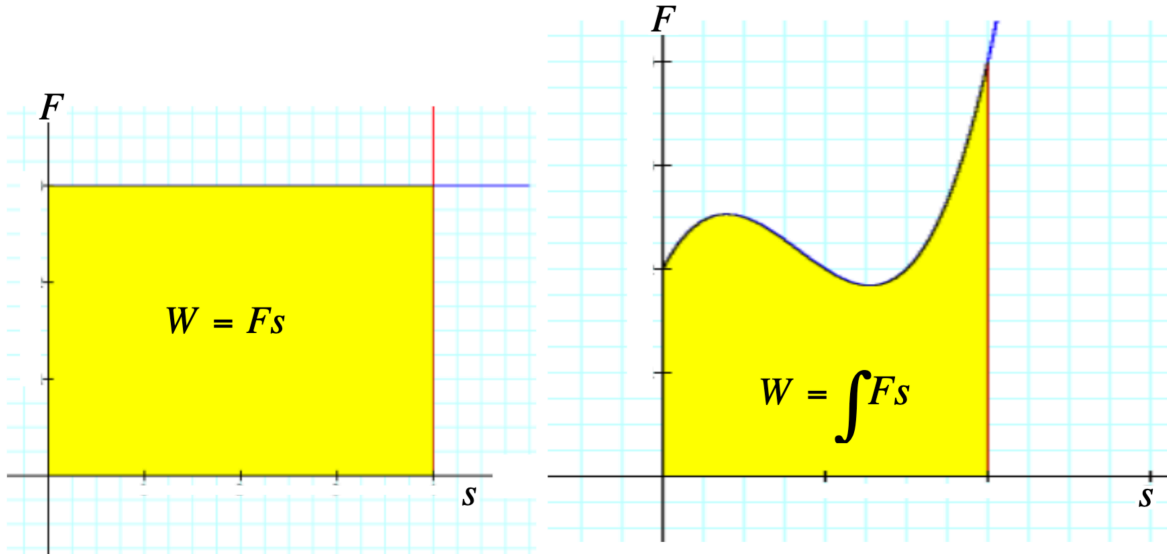


Work



1. A variable force acting on an object is represented by the function $f(x) = x^2 - 4x + 7$ where x is the distance in meters from the origin. How much work is required to move the object from $x = 1$ to $x = 4$?
2. A force of 50 lb is required to hold a spring 5 inches beyond its natural length. How much work is required to stretch it from its natural length to 10 inches beyond its natural length? (x is the difference between its natural length and stretched length)
3. A force of 60N is required to hold a spring that has been stretched from its natural length of 12 cm to 17 cm. How much work is done in stretching the spring from 15 cm to 20 cm?
4. An 80 ft rope with a weight of 3lb/ft hangs over the edge of a building that is 200 ft high.
 - a. How much work is required to pull the entire rope to the top?
 - b. How much work is required to pull half the rope to the top?
5. How much work is required to lift a 300 lb crate up a distance of 200 ft using a rope that weighs 4 lb/ft?