

Mechanical Work

Work = Force x Distance

$$W = Fd$$

Units of work are joules, same as for energy. 1 joule is the work done by force 1 newton over distance traveled 1 meter.

$$1\text{J} = 1\text{N} \cdot 1\text{m}$$

Homework 15

Problem 1.

Boeing-737 with thrust force 40 kN (kiloNewtons) is going from New York City to Chicago, which is a 1100 km trip.

Boeing-747 with thrust force 280 kN is going from NYC to London, which is 5500 km trip. How many times more fuel does 747 require for its trip?

Hint: the amount of fuel is proportional to work done by the engines.