1. A diesel engine consumes 150,000 J of energy by combusting diesel fuel, creating 25,000 J of kinetic energy for the vehicle. What is the percent efficiency of the engine?
2. A windmill that is 38% efficient receives 50,000 J of wind energy over a 12-hour period. How much electricity will it produce over the same time period?

19 000 J

1. An LED has an efficiency rating of 62% and produces 5000 J of luminous energy. How much electrical energy did the LED require to produce this?

1. A motor consumes 100,000 J of energy with an efficiency of 18%. How much energy was wasted during that transformation?

Useful = 18 000

Wasted= 100 000 J – 18 000 J = 82 000 J

(or just calculate 82% of 100 000 J)

1. A 100 W incandescent light bulb is running for 3 hours, over which time it produces 75,000 J of luminous energy. What is the efficiency of the bulb?
2. A buzzer is connected to a 9 V battery and draws 0.1 A of current. It is connected to the battery for 1 hour. If the efficiency of the buzzer 10%, then how much sound energy is produced over that time?