



## 2-e-1

We have a car with a combustion engine. The efficiency of the engine is  $\eta_1 = 40\%$ . The efficiency of the crank that spins the wheels is  $\eta_2 = 98\%$  due to friction and the efficiency of the wheel moving the car is  $\eta_3 = 90\%$  due to some loss in elastic energy and heating. The efficiency of the air conditioning is  $\eta_4 = 50\%$ . What is the overall efficiency of the car?

Answer: 35%

It is obtained by multiplying the first 3 efficiencies as the AC efficiency does not have to do with moving the car, it was put there as a diversion.