

43. The energy equivalent of one tablet is $mc^2 = (320 \times 10^{-6} \text{ kg})(3.00 \times 10^8 \text{ m/s})^2 = 2.88 \times 10^{13} \text{ J}$. This provides the same energy as $(2.88 \times 10^{13} \text{ J})/(3.65 \times 10^7 \text{ J/L}) = 7.89 \times 10^5 \text{ L}$ of gasoline. The distance the car can go is $d = (7.89 \times 10^5 \text{ L})(12.75 \text{ km/L}) = 1.01 \times 10^7 \text{ km}$. This is roughly 250 times larger than the circumference of Earth (see Appendix C).