# International System of units and prefixes

## Exercises

1. Write the following quantities using SI prefixes:
	1. $2.7×10^{6}J$
	2. $6.58×10^{-9}J$
	3. $5,600,000,000,000J$
	4. $4,900,000mW$
2. Convert $4.5×10^{-12}J$ into
	1. electron volts
	2. mass equivalent in $kg$ (hint: use $E=mc^{2}$)
3. The Kinetic energy of a moving object is given by: $KE=\frac{1}{2}mv^{2}$.

Find the energy of a mosquito with a mass of $1mg$ flying at $2ms^{-1}$.

Express your answer in

* 1. Joules
	2. $eV$ using the appropriate SI prefixes
1. In the mosquito example above:
	1. Convert the mass of the mosquito to atomic mass units (u)
	2. Use the relationship $1u=931.5Mev$ to determine the energy that would be released if the mosquito’s mass was totally converted into energy. Express your answer in $eV$ and in Joules.
2. A proton has a mass of $1.6726×10^{-27}kg$.

Express the mass of a proton in atomic mass units and determine its energy equivalence in $eV$.

## Answers

* 1. $2.7Mj$
	2. $6.58nJ$
	3. $5.6TJ$
	4. $4.9kW$
	5. $28.125MeV$
	6. $5×10^{-31}kg$
	7. $2μJ$
	8. $12.5TeV$
	9. $6.024×10^{20}u$
	10. $5.61×10^{23}MeV=9×10^{10}J$
	11. $1.0076u$
	12. $938.6MeV$