

SUMMER TASK

PHYSICS



20
21

Please complete the tasks below, we'd appreciate it if you could bring them in during your first week with us in September.

TASK 1

In science we use a system of units called the SI system of units. (SI = Systeme Internationale). Most measured physical quantities have units. Answers without appropriate units tell us nothing. For example:

Q: 'How far is it to Mars?' A: '2.4' (right or wrong?).

For each of the quantities in the following list, state the name and symbol of the SI units used to measure each quantity. Remember if a unit is named after a person, it always starts with a capital letter. Some of the answers you should already know, but some you may need to look up.

Time, Distance, Speed, Acceleration, Force, Mass, Weight, Energy, Power, Pressure, Frequency, Wavelength, Voltage, Current, Charge, Resistance, Temperature

TASK 2

When we want to deal with very large or small numbers, we often use unit prefixes. For example instead of saying that the distance between two cities was 23,000 metres, we would probably tend to say that the distance was 23 kilometres.

The table below contains the common unit prefixes that we will use during the A-Level physics course.

f	p	n	μ	m	k	M	G	T
femto	pico	nano	micro	milli	kilo	Mega	Giga	Tera
$\times 10^{-15}$	$\times 10^{-12}$	$\times 10^{-9}$	$\times 10^{-6}$	$\times 10^{-3}$	$\times 10^3$	$\times 10^6$	$\times 10^9$	$\times 10^{12}$

Typically, before using any number in a formula, we will need to convert the number into SI units without a prefix, e.g. converting centimetres into metres or converting Gigavolts into Volts.

Convert the following quantities into SI units without a prefix

- a) 1 cm b) 5.5 nm c) 180 Mm d) 18 Gm e) 10.0 μ m f) 0.1 fm g) 0.06 G

TASK 3

In physics, we often use words which have a very specific technical meaning. Sometimes these words get used incorrectly in everyday life which can be confusing.

- a) Explain the difference between mass and weight.
b) Explain the difference between precise and accurate, when applied to a measurement of a physical quantity.