**Skills: Using the Scientific Calculator**

Many grade 11 students do not know how to use their calculator functions – so, here's a short lesson on keys that are useful in physics -

The order of keystrokes depends upon the calculator/manufacturer you are using, so you really need to try this yourself using the calculator that you expect use on tests.

If you get a different answer, try different order of keystrokes – and/or come for help.

**Calculator Key**

[1/x] or [$x^{-1}$] (key format depends on the calculator/manufacturer)

This key is particularly useful with f = 1/T and T = 1/f

***Example problem:***

The frequency of a metronome is 3.5 Hz. Determine the period of the metronome.

Solution: T = 1/f = 1/(3.5 $s^{-1}$) = 0.29 s = $\underline{2.9\times10^{-1}\text{s}}$

Try using the [1/x] or [$x^{-1}$] key to solve the example problem – make sure you get 0.29

***Calculator keystrokes for determining the solution:***

Depending on the calculator/manufacturer, either:

3.5[1/x][=] Or [1/x]3.5[=]

**Calculator Key**

[EXP] = [EE] = [$10^x$] (format depends on the calculator/manufacturer)

***Example problem:***

An electromagnetic wave in space has a frequency of $5.5\times10^{15}$ Hz. Determine the wavelength.
(reminder: speed of all electromagnetic waves in space is $3.00\times10^8$ m/s)

Solution:

$v = f\lambda$

therefore $\lambda = v/f = (3.00\times10^8 \text{ m/s})/(5.5\times10^{15} \text{ Hz}) = \underline{5.5\times10^{-8} \text{ m}}$

***Calculator keystrokes for determining the solution:***

3[EXP]8[÷]5.5[EXP]15[=]

Some calculators might use a different order of keystrokes – if you get the wrong answer, come for help.

***Very common misunderstanding/error*** – students keying in 3[×]10[$y^x$]8 …. This is wrong, and you'll get the wrong final answer if you do it that way.

The [Exp] = [EE] = [$10^x$] key already includes $10^x$, so you must not also multiply by 10.