Section 1: Finding and using Maclaurin series

Crucial points

1. **Be careful with your working when finding a Maclaurin expansion**
   There are a lot of opportunities to make mistakes: in differentiating or in substituting into the formula. Check your work carefully.

2. **Be careful when substituting into standard Maclaurin series**
   Remember that if you are finding, for example, e^{2x} by substituting $2x$ into the standard series, that you must find $(2x)^2$, $(2x)^3$ etc: remember to find the power of 2 as well as the power of x!

3. **Make sure it's appropriate to use standard series**
   For example, you can't easily use standard series to find the expansion for $\ln(\cos x)$, because you would need to substitute the series for $\cos x$ into every term of the series for $\ln x$ to get all the constant terms, and so on. In cases like these, you need to use repeated differentiation and substitute into the general Maclaurin formula.

4. **Remember that some of the standard series are valid only for certain values of x**
   The ranges of validity are given in your formula book.

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