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| **Year 2 pure unit 4: The binomial expansion** | **Road Map** |
| In this unit you will learn about pure maths. The aims are as follows:**LG1**: Knowledge**LG2**: Application**LG3**: Skills | Assessment Grades |  |  |
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| **Themes** | **Learning Goals/Outcomes/Content** |  |  |  |
| **4a. Expanding** **(*a* + *bx*)*n* for rational *n*; knowledge of range of validity** | be able to find the binomial expansion of $(1-x)^{-1 }$ for rational values of *n* and $\left|x\right|<1$; |  |  |  |
| be able to find the binomial expansion of $(1+x)^{n } $for rational values of *n* and $\left|x\right|<1$; |  |  |  |
| be able to find the binomial expansion of $(1+bx)^{n } $for rational values of *n* and $\left|x\right|<\frac{1}{\left|b\right|}$; |  |  |  |
| be able to find the binomial expansion of $(a+x)^{n }$ for rational values of *n* and $\left|x\right|<a$; |  |  |  |
| be able to find the binomial expansion of $(a+bx)^{n }$ for rational values of *n* and $\left|\frac{bx}{a}\right|$ < 1; |  |  |  |
| know how to use the binomial theorem to find approximations (including roots). |  |  |  |
| **4b. Expansion of functions by first using partial fractions** | be able to use partial fractions to write a rational function as a series expansion. |  |  |  |

**Links:**

LG1: You will learn how to find binomial expansions including where the power is negative or fractional and where neither term inside the binomial is equal to 1. You will learn how to use the binomial theorem to find approximations including roots.

LG2: You will be able to apply your knowledge of partial fractions to write a rational function as a series expansion.

LG3: You will be able to solve a variety of routine and non-routine problems, by combining several Mathematical skill sets. For example, by assessing the separate validities for individual binomial terms to declare the validity of the final series.