

# Year 12 Pure learning journey

## LEARNING JOURNEY



Binomial expansions

Algebraic methods

Sequences & Series

Functions & graphs

Revision/review

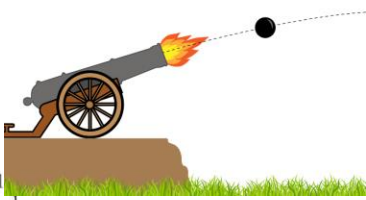
Revision/review

Revision/review

Pascal's Triangle

$$\begin{array}{r}
 (a+b)^0 \quad 1 \\
 (a+b)^1 \quad 1 \quad 1 \\
 (a+b)^2 \quad 1 \quad 2 \quad 1 \\
 (a+b)^3 \quad 1 \quad 3 \quad 3 \quad 1 \\
 (a+b)^4 \quad 1 \quad 4 \quad 6 \quad 4 \quad 1 \\
 (a+b)^5 \quad 1 \quad 5 \quad 10 \quad 10 \quad 5 \quad 1 \\
 (a+b)^6 \quad 1 \quad 6 \quad 15 \quad 20 \quad 15 \quad 6 \quad 1 \\
 (a+b)^7 \quad 1 \quad 7 \quad 21 \quad 35 \quad 35 \quad 21 \quad 7 \quad 1 \\
 (a+b)^8 \quad 1 \quad 8 \quad 28 \quad 56 \quad 70 \quad 56 \quad 28 \quad 8 \quad 1 \\
 (a+b)^9 \quad 1 \quad 9 \quad 36 \quad 84 \quad 126 \quad 126 \quad 84 \quad 36 \quad 9 \quad 1
 \end{array}$$

Pascal's Triangle provides the coefficients of each term of the binomial expansion



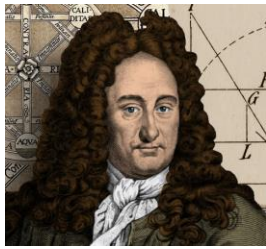
Integration



Vectors

Revision/review

Exponential & Logarithms

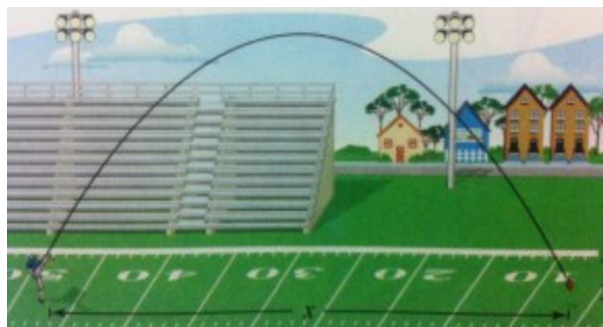
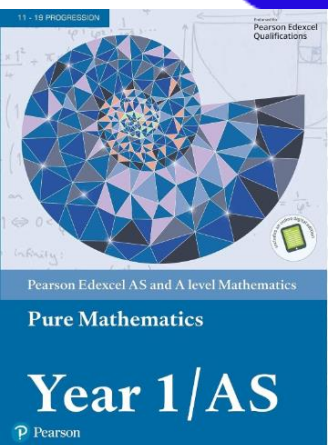


Differentiation

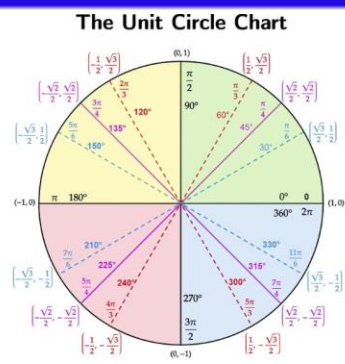
Binomial Expansion

Trigonometric identities & equations

Trigonometric ratios



Circles



Graphs & transformations

Straight lines

Algebraic methods

Quadratics

Equations & Inequalities

Algebraic expressions



### Year 12 learning summary: Rationale

In Year 12 we will explore the following:

- understand mathematics and mathematical processes in a way that promotes confidence, fosters enjoyment and provides a strong foundation for progress to further study
- extend their range of mathematical skills and techniques
- understand coherence and progression in mathematics and how different areas of mathematics are connected
- apply mathematics in other fields of study and be aware of the relevance of mathematics to the world of work and to situations in society in general
- use their mathematical knowledge to make logical and reasoned decisions in solving problems both within pure mathematics and in a variety of contexts, and communicate the mathematical rationale for these decisions clearly
- reason logically and recognise incorrect reasoning
- generalise mathematically
- construct mathematical proofs
- use their mathematical skills and techniques to solve challenging problems that require them to decide on the solution strategy
- make deductions and inferences and draw conclusions by using mathematical reasoning