



Ark Acton
Academy

**What are we
learning in
Yr13 Maths?**

Spring 2022

What are students studying this term?	Where can your child find resources to use for support or practice?
M2. Ch6 Projectiles	<p>Objectives</p> <p>After completing this chapter you should be able to:</p> <ul style="list-style-type: none"> ● Model motion under gravity for an object projected horizontally → pages 108–111 ● Resolve velocity into components → pages 111–113 ● Solve problems involving particles projected at an angle → pages 113–120 ● Derive the formulae for time of flight, range and greatest height, and the equation of the path of a projectile → pages 120–125
M2: Ch7. Applications of forces	<p>Objectives</p> <p>After completing this chapter you should be able to:</p> <ul style="list-style-type: none"> ● Find an unknown force when a system is in equilibrium → pages 129–132 ● Solve statics problems involving weight, tension and pulleys → pages 132–137 ● Understand and solve problems involving limiting equilibrium → pages 137–146 ● Solve problems involving motion on rough or smooth inclined planes → pages 147–150 ● Solve problems involving connected particles that require the resolution of forces → pages 150–154
M2: Ch8. Further Kinematics	<p>Objectives</p> <p>After completing this chapter you should be able to:</p> <ul style="list-style-type: none"> ● Work with vectors for displacement, velocity and acceleration when using the vector equations of motion → pages 160–167 ● Use calculus with harder functions of time involving variable acceleration → pages 167–170 ● Differentiate and integrate vectors with respect to time → pages 171–177

<p>P2: Ch4. Binomial Expansion</p>	<p>Objectives</p> <p>After completing this chapter you should be able to:</p> <ul style="list-style-type: none"> ● Expand $(1 + x)^n$ for any rational constant n and determine the range of values of x for which the expansion is valid → pages 92–97 ● Expand $(a + bx)^n$ for any rational constant n and determine the range of values of x for which the expansion is valid → pages 97–100 ● Use partial fractions to expand fractional expressions → pages 101–103
<p>P2: Ch8. Parametric Equations</p>	<p>Objectives</p> <p>After completing this chapter you should be able to:</p> <ul style="list-style-type: none"> ● Convert parametric equations into Cartesian form by substitution → pages 198–202 ● Convert parametric equations into Cartesian form using trigonometric identities → pages 202–206 ● Understand and use parametric equations of curves and sketch parametric curves → pages 206–208 ● Solve coordinate geometry problems involving parametric equations → pages 209–213 ● Use parametric equations in modelling in a variety of contexts → pages 213–220
<p>P2: Ch10. Numerical Methods</p>	<p>Objectives</p> <p>After completing this chapter you should be able to:</p> <ul style="list-style-type: none"> ● Locate roots of $f(x) = 0$ by considering changes of sign → pages 274–277 ● Use iteration to find an approximation to the root of the equation $f(x) = 0$ → pages 278–282 ● Use the Newton–Raphson procedure to find approximations to the solutions of equations of the form $f(x) = 0$ → pages 282–285 ● Use numerical methods to solve problems in context → pages 286–289

S2: Ch1.
Regression,
Correlation
and
Hypothesis
Testing

Objectives

After completing this chapter you should be able to:

- Understand exponential models in bivariate data → pages 2–5
- Use a change of variable to estimate coefficients in an exponential model → pages 2–5
- Understand and calculate the product moment correlation coefficient → pages 5–8
- Carry out a hypothesis test for zero correlation → pages 8–12

S2: Ch2.
Conditional
probability

Objectives

After completing this chapter you should be able to:

- Understand set notation in probability → pages 17–21
- Understand conditional probability → pages 21–24
- Solve conditional probability problems using two-way tables and Venn diagrams → pages 24–27
- Use probability formulae to solve problems → pages 27–30
- Solve conditional probability using tree diagrams → pages 30–31

S2: Ch3. The
Normal
Distribution

Objectives

After completing this chapter you should be able to:

- Understand the normal distribution and the characteristics of a normal distribution curve → pages 38–41
- Find percentage points on a standard normal curve → pages 41–47
- Calculate values on a standard normal curve → pages 47–49
- Find unknown means and/or standard deviations for a normal distribution → pages 49–53
- Approximate a binomial distribution using a normal distribution → pages 53–55
- Select appropriate distributions and solve real-life problems in context → pages 53–60
- Carry out a hypothesis test for the mean of a normal distribution → pages 53–60