

Year 11 Higher Autumn Term 1

Block 1 – Weeks 1 and 2

Simultaneous Equations

- Solve simultaneous equations algebraically using elimination and substitution.
- Solve linear and quadratic simultaneous equations, including graphically.
- Construct and solve simultaneous equations from given information and problems.

Unlock vocabulary

Simultaneous equations	Two equations that are solved together to find values that satisfy both.
Solution	The values of the unknowns that make both equations true.
Elimination	Solving simultaneous equations by removing one of the unknowns.
Linear equation	An equation where the highest power of the unknown is 1.
Quadratic equation	An equation containing a squared term, such as x^2 .
Intersection	A point where two graphs cross, representing a solution.

Sparx Independent Learning

Solving simultaneous equations using elimination	U760
Solving simultaneous equations using substitution	U757
Solving simultaneous equations involving quadratics	U547
Solving simultaneous equations graphically	U836
Solving simultaneous equations involving quadratics graphically	U875
Constructing and solving linear simultaneous equations	U137
Constructing and solving linear and quadratic simultaneous equations	U269

Block 2 – Week 3 and 4

Equations and Formulae

- Construct and solve quadratic equations using factorising, completing the square and the quadratic formula.
- Solve equations approximately using iteration.
- Solve linear and quadratic inequalities.

Unlock vocabulary

Quadratic	An expression or equation containing a squared term, such as x^2 .
Factorise	To put an expression into brackets
Completing the Square	Rewrite a quadratic in the form $(x+a)^2 + c$
Quadratic Formula	A formula we use to solve quadratic equations that cannot be factorised
Iteration	Repeating a calculation to get closer to an approximate solution.
Approximation	A value that is close to the exact answer.
Inequality	A statement comparing values using $<$, $>$, $\leq$ or $\geq$.

Sparx Independent Learning

Substituting into iterative formulae	U434
Finding approximate solutions to equations using iteration	U168
Constructing and solving equations	U599
Factorising to solve quadratic equations of the form $x^2 + bx + c = 0$	U228
Factorising to solve quadratic equations of the form $ax^2 + bx + c = 0$	U960
Solving quadratic equations by completing the square	U589
Solving quadratic equations using the quadratic formula	U665
Solving inequalities with the unknown on both sides	U738
Solving quadratic inequalities	U133

Mathematics Overview

Block 3 – Weeks 5 to 6

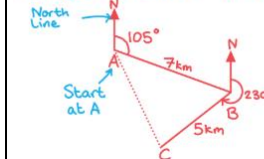
Angles, Bearings and Trigonometry

- Understand, measure and calculate bearings, including using angle rules and scale drawings.
- Use Pythagoras and trigonometry to solve bearing and triangle problems.
- Use the sine rule, cosine rule and area of a triangle formula to solve non-right-angled triangle problems.

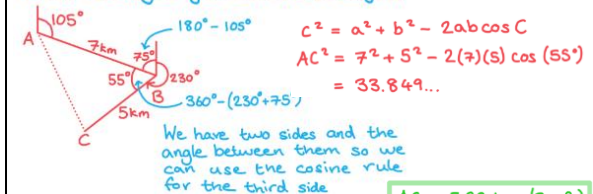
Unlock vocabulary

Bearing	A direction measured clockwise from north, written as three digits.
Co-interior Angles	pairs of angles formed on the same side of a transversal crossing two parallel lines and sum to 180°
Trigonometric	relating to trigonometry or dealing with relationships between sides and angles of triangles
Formula	mathematical rule or equation that shows the relationship between different variables or quantities

Always start with a diagram:



Fill in the angles you can on the diagram



$$AC = 5.82 \text{ km (3 s.f.)}$$

Sparx Independent Learning

Measuring and drawing bearings	U525
Calculating bearings	U107
Calculating with trigonometry and bearings	U164