# Specification A-Level EDEXCEL Maths

# Year 1 PURE MATHS

| 1. Algebraic Expression | |
|---|---|
| 1.1 | Index laws |
| 1.2 | Expanding brackets |
| 1.3 | Factorising |
| 1.4 | Negative & fractional indices |
| 1.5 | Surds |
| 1.6 | Rationalising denominators |

| 2. Quadratics | |
|---|---|
| 2.1 | Solving quadratic equations |
| 2.2 | Completing the square |
| 2.3 | Functions |
| 2.4 | Quadratic Graphs |
| 2.5 | The discriminant |
| 2.6 | Modelling with quadratics |

| 3. Equations & inequalities | |
|---|---|
| 3.1 | Linear simultaneous equations |
| 3.2 | Quadratic simultaneous equations |
| 3.3 | Simultaneous equations on graphs |
| 3.4 | Linear inequalities |
| 3.5 | Quadratic inequalities |
| 3.6 | Inequalities on graphs |
| 3.7 | Regions |

| 4. Graphs & transformations | |
|---|---|
| 4.1 | Cubic graphs |
| 4.2 | Quartic graphs |
| 4.3 | Reciprocal graphs |
| 4.4 | Points of intersection |
| 4.5 | Translating graphs |
| 4.6 | Stretching graphs |
| 4.7 | Transforming functions |

| 5. Straight line graphs | |
|---|---|
| 5.1 | y - mx + c |
| 5.2 | Equations of straight lines |
| 5.3 | Parallel & perpendicular lines |
| 5.4 | Length & area |
| 5.5 | Modelling with straight lines |

| 6. Circles | |
|---|---|
| 6.1 | Midpoints & perpendicular bisectors |
| 6.2 | Equations of a circle |
| 6.3 | Intersection of straight line & circle |
| 6.4 | Use tangent & chord properties |
| 6.5 | Circles & triangles |

| 7. Algebraic methods | |
|---|---|
| 7.1 | Algebraic fractions |
| 7.2 | Dividing polynomials |
| 7.3 | The Factor Theorem |
| 7.4 | Mathematical proof |
| 7.5 | Methods of proof |

| 8. Binomial expansion | |
|---|---|
| 8.1 | Pascal's triangle |
| 8.2 | Factorial notation |
| 8.3 | The binomial expansion |
| 8.4 | Solving binomial problems |
| 8.5 | Binomial estimation |

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| 9. Trigonometric ratios | |
|---|---|
| 9.1 | The cosine rule |
| 9.2 | The sine rule |
| 9.3 | Areas of traingles |
| 9.4 | Solving triangle problems |
| 9.5 | Graphs of sine, cosine and tangent |
| 9.6 | Transforming trigonometric graphs |

| 10. Trigonometric identities and equations | |
|---|---|
| 10.1 | Angles in all four quadrants |
| 10.2 | Exact values of trigonometric ratios |
| 10.3 | Trigonometric identities |
| 10.4 | Simple trigonometric equations |
| 10.5 | Harder trigonometric equations |
| 10.6 | Equations & identities |

| 11. Vectors | |
|---|---|
| 11.1 | Vectors |
| 11.2 | Representing vectors |
| 11.3 | Magnitude & direction |
| 11.4 | Position vectors |
| 11.5 | Solving geometric problems |
| 11.6 | Modelling with vectors |

| 12. Differentiation | |
|---|---|
| 12.1 | Gradients of curves |
| 12.2 | Finding the derivative |
| 12.3 | Differentiating $x^n$ |
| 12.4 | Differentiating quadratics |
| 12.5 | Differentiating functions with 2 or more terms |
| 12.6 | Gradients, tangents and normal |
| 12.7 | Increasing and decreasing functions |
| 12.8 | Second order derivative |
| 12.9 | Stationary points |
| 12.10 | Sketching gradient functions |
| 12.11 | Modelling with differentiation |

| 13. Integration | |
|---|---|
| 13.1 | Integrating $x^n$ |
| 13.2 | Indefinite integrals |
| 13.3 | Finding functions |
| 13.4 | Definite integrals |
| 13.5 | Area under curves |
| 13.6 | Areas unser the x-axis |
| 13.7 | Areas between curves and lines |

| 14. Exponentials & logarithms | |
|---|---|
| 14.1 | Exponential functions |
| 14.2 | $y = e^x$ |
| 14.3 | Exponential modelling |
| 14.4 | Logarithms |
| 14.5 | Laws of logarithms |
| 14.6 | Solving equations using logarithms |
| 14.7 | Working with natural logarithms |
| 14.8 | Logarithms & non-linear data |

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