



Getting Ready for...

KS5 (A Level) Maths

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Activities

1. Can you manipulate surds?

Can you add, subtract, multiply and divide surds?

Can you simplify a surd?

Can you rationalise the denominator of a fraction containing a surd?

2. Laws of Indices

Make sure that you can work with the laws of indices.

Can you simplify algebraic terms with indices?

Can you simplify algebraic fractions with index terms?

E.g. $(x^2 + 3x) / x^3$

3. Rearranging the formula

Ensure that you can fluently rearrange a formula.

Can you change the subject when a variable appears twice using factorisation?

Make x the subject of: $y = (2x + 3) / x$

4. Factorise, factorise, factorise

Make sure you can factorise a quadratic when the coefficient of x^2 is greater than 1. Don't forget about the difference of two squares...

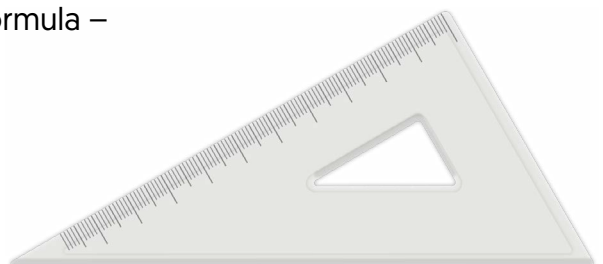
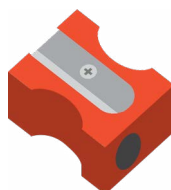
Factorise $6x^2 - x - 2$

Factorise $4x^2 - 16y^2$

Can you solve quadratic equations by factorising?

5. Quadratics

Practise solving quadratics using the quadratic formula – and make sure that you know the formula!





6. Complete the square

Make sure that you can complete the square, and that you know why this would be useful.

Write $x^2 - 6x + 4$ in the form $(x + p)^2 + q$

Can you complete the square if the coefficient of x^2 is greater than 1?

Can you solve equations by completing the square?

Can you identify the minimum point of a quadratic graph by completing the square? What about the equation of the line of symmetry?

7. Simultaneous equations

Make sure that you are fluent when solving simultaneous equations, both with elimination AND substitution methods.

Can you extend this to one quadratic and one linear equation?

Can you represent or interpret these equations and solutions graphically?

8. Straight lines: $y = mx + c$

Make sure that you can find gradients, intercepts, perpendicular gradients, the gradient between 2 points and the equations of parallel and perpendicular lines.

9. Interpreting graphs

Can you draw and solve a quadratic graph, a cubic graph and a reciprocal graph? How about the graph of a circle?

Can you transform a graph? Can you translate it, stretch it and reflect it?

Do you know what this does to the equation of the graph?

Can you sketch the trigonometric graphs, and transform them?

10. Get fluent with trigonometry

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Can you recite the Sine Rule and the Cosine Rule? Can you use these rules to find missing lengths and angles? Can you use these with scenarios involving bearings?

Can you calculate the area of a non-right-angled triangle?

