Autograph

The Complete Mathematics Conference

Introducing Autograph 5

MathsConf-22, Manchester Enterprise Academy Central
Saturday, 14th March 2020

Session 1   10:10-11:00   AUTOGRAPH 5 FOR KS3
Douglas Butler, with **Leona So** (AMSP/MEI)

*Regular polygons, transformations, circle theorems/properties, vectors;
area/volume of standard 2D/3D objects.*
• **Leona:** *Straight line, solving 2 simultaneous equations, quadratic functions.*

Session 2   11:20-12:10   AUTOGRAPH 5 FOR KS4
Douglas Butler, with **Martin Withington** (Mathematics consultant)

*Completing the square; equation of a circle and its tangent; exponentiial graphs;
the gradient/area under a graph; distance/velocity/time plots; trig graphs,
translations/reflections of a function; vectors.*
• **Martin:** *Linear/quadratics; inverse functions.*

Session 3   12:15-13:05   AUTOGRAPH 5 FOR STATISTICS
Douglas Butler, with **Leona So** (AMSP/MEI)

KS4: Raw/discrete/continuous, box plots, outliers, quartiles, histogram.
• **Leona:** *Scatter graphs, line of best fit.*

*KS5: discrete/continuous probabilities; population/sampling; dot plot,
box plot, histogram; outliers; scatter diagram, least squares, correlation.*
• **Leona:** *Binomial, Poisson, normal; hypothesis testing.*

Session 4   14:10-15:00   A5 FOR MATHEMATICS A LEVEL
Douglas Butler, with **Martin Withington** (Mathematics consultant)

*Calculus concepts, fundamental theorem; exponential/logs, trig graphs/radians,
transformation of graphs; trapezium rule for integration, domain and range,
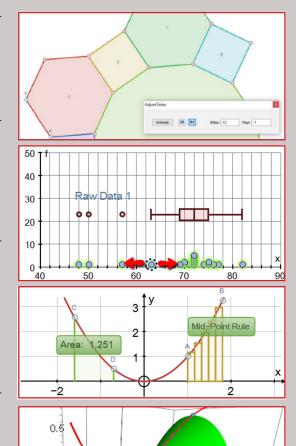vector algebra in 2D and 3D; 1st order differential equations.*
• **Martin:** *Parametric graphs; Newton-Raphson iteration.*
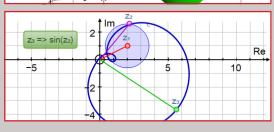

Session 5   15:20-16:10   A5 FOR FURTHER MATHS A LEVEL
Douglas Butler, with **Janet Smith** (Abbey College, Cambridge)

*Argand diagram, complex numbers, loci, roots of unity; volumes of revolution;
matrices/transformations; 3D vectors, vector product; polar graphs;
inverse trig/hyperbolic functions. Statistics: least squares regression, sampling.*
• **Janet:** *Lines and planes; 2nd order linear differential equations.*

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