Stuart Bathurst Catholic High School

Mathematics Department

Long-term sequencing Year 12 Further Pure 1

HALF TERM 2:
STUDENTS MUST KNOW:

Chapter 2: Conic sections 1

- know and be able to use the Cartesian and parametric equations for the parabola and rectangular hyperbola;
- know and be able to use the focus-directrix properties of the parabola.
- be able to derive the equations of tangents and normals to the parabola and rectangular hyperbola and solve related problems.
- be able to describe each parabola section in terms of a locus of points and solve related loci problems.

HOW THIS WILL BE ASSESSED:
Recall and Retrieval tasks
End of unit assessments

HALF TERM 3:
STUDENTS MUST KNOW:

Chapter 2: Conic sections 1

- know and be able to use the Cartesian and parametric equations for the parabola and rectangular hyperbola;
- know and be able to use the focus-directrix properties of the parabola.
- be able to derive the equations of tangents and normals to the parabola and rectangular hyperbola and solve related problems.
- be able to describe each parabola section in terms of a locus of points and solve related loci problems.

Chapter 4: Inequalities

- Manipulate inequalities involving algebraic fractions.
- Use graphs to find solutions to inequalities.
- Solve inequalities involving modulus signs.

Chapter 5: The t-formulae

- be able to derive and use the t-formulae.
- be able to apply the t-formulae to trigonometric identities.
- be able to apply the t-formulae to solve trigonometric equations.

HOW THIS WILL BE ASSESSED:
Recall and Retrieval tasks
End of unit assessments

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HALF TERM 4:
STUDENTS MUST KNOW:

Chapter 5: The t-formulae

- be able to derive and use the *t*-formulae.
- be able to apply the *t*-formulae to trigonometric identities.
- be able to apply the *t*-formulae to solve trigonometric equations.

Chapter 8: Numerical methods

- Find numerical solutions to first-order differential equations using Euler's method and the midpoint method.
- Extend Euler's method to find numerical solutions to second-order differential equations.
- Use Simpson's rule to find an approximation for a given definite integral.

Chapter 1: Vectors

- Find the vector product $\boldsymbol{a} \times \boldsymbol{b}$ of two vectors $\boldsymbol{a}$ and $\boldsymbol{b}$.
- Interpret $|\boldsymbol{a} \times \boldsymbol{b}|$ as an area.
- Find the scalar triple product $\boldsymbol{a}.\boldsymbol{b} \times \boldsymbol{c}$ of three vectors $\boldsymbol{a}, \boldsymbol{b}$ and $\boldsymbol{c}$ and be able to interpret it as a volume
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HOW THIS WILL BE ASSESSED:
Recall and Retrieval tasks
End of unit assessments

HALF TERM 5 & 6:
STUDENTS MUST KNOW:

- Revision and Review

HOW THIS WILL BE ASSESSED:
Recall and Retrieval tasks