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| **Year 1 pure unit 3: Coordinate geometry in the (x, y) plane.** | **Road Map** | | | | | |
| In this unit you will learn about pure mathematics. The aims are as follows:  **LG1**: Knowledge  **LG2**: Application  **LG3**: Skills | Assessment Grades |  |  | | | |
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| **Themes** | **Learning Goals/Outcomes/Content** | | |  |  |  |
| **3a. Straight-line graphs, parallel/perpendicular, length and area problems** | understand and use the equation of a straight line; | | |  |  |  |
| know and be able to apply the gradient conditions for two straight lines to be parallel or perpendicular; | | |  |  |  |
| be able to find lengths and areas using equations of straight lines; | | |  |  |  |
| be able to use straight-line graphs in modelling. | | |  |  |  |
| **3b. Circles: equation of a circle, geometric problems on a grid** | be able to find the midpoint of a line segment; | | |  |  |  |
| understand and use the equation of a circle; | | |  |  |  |
| be able to find points of intersection between a circle and a line; | | |  |  |  |
| know and be able to use the properties of chords and tangents. | | |  |  |  |

**Links:**

LG1: You need to know how to find equations of linear graphs given a number of different pieces of information, and by writing equations in different forms. You should know how to write the equation of a circle and find one by completing the square.

LG2: You should be able to apply your knowledge of both circle theorems and coordinate geometry to solve problems such as finding coordinates, lengths of line segments and equations of lines and circles.

LG3: You will solve a variety of routine and non-routine problems, by combining several Mathematical skill sets. For example, by finding more than one pair of coordinates that could satisfy a given set of geometric criteria by forming and solving a quadratic equation.