|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **H Unit 15: Quadratics** | **Road Map** | | | | | |
| In this unit you will learn about algebra. The aims are as follows:  **LG1**: Knowledge  **LG2**: Application  **LG3**: Skills | Assessment Grades |  |  | | | |
|  | |  | | | |
|  | |  | | | |
|  | |  | | | |
|  | |  | | | |
|  | |  | | | |
| **Themes** | **Learning Goals/Outcomes/Content** | | |  |  |  |
| 15 Quadratics, expanding more than two brackets, sketching graphs, graphs of circles, cubes and quadratics | Sketch a graph of a quadratic function, by factorising or by using the formula, identifying roots and *y*-intercept, turning point; | | |  |  |  |
| Be able to identify from a graph if a quadratic equation has any real roots; | | |  |  |  |
| Find approximate solutions to quadratic equations using a graph; | | |  |  |  |
| Expand the product of more than two linear expressions; | | |  |  |  |
| Sketch a graph of a quadratic function and a linear function, identifying intersection points; | | |  |  |  |
| Sketch graphs of simple cubic functions, given as three linear expressions; | | |  |  |  |
| Solve simultaneous equations graphically: | | |  |  |  |
| find approximate solutions to simultaneous equations formed from one linear function and one quadratic function using a graphical approach; | | |  |  |  |
| find graphically the intersection points of a given straight line with a circle; | | |  |  |  |
| solve simultaneous equations representing a real-life situation graphically, and interpret the solution in the context of the problem; | | |  |  |  |
| Solve quadratic inequalities in one variable, by factorising and sketching the graph to find critical values; | | |  |  |  |
| Represent the solution set for inequalities using set notation, i.e. curly brackets and ‘is an element of’ notation; | | |  |  |  |
| for problems identifying the solutions to two different inequalities, show this as the intersection of the two solution sets, i.e. solution of *x*² – 3*x* – 10 < 0 as {*x*: –3 < *x* < 5}; | | |  |  |  |
| Solve linear inequalities in two variables graphically; | | |  |  |  |
| Show the solution set of several inequalities in two variables on a graph; | | |  |  |  |
| Use iteration with simple converging sequences. | | |  |  |  |

**Links:**

LG1: You will sketch quadratic and cubic graphs, solve simultaneous equations graphically, find the product of more than 2 linear expressions, solve quadratic inequalities and represent inequalities as regions on a graph.

LG2: You will apply graphical processes to draw conclusions about the number of roots of an equation or pair of simultaneous equations from the number of points of intersection.

LG3: You will use your problem solving skills and mastery of quadratics to form and solve quadratic inequalities from worded problems.