Chapter 4

Graphs and Transformations

Chapter Overview

1. Polynomial Graphs

a. Cubic Graphs

b. Quartic Graphs

c. Reciprocal Graphs

2. Points of Intersection

3. Graph Transformations







Polynomial Graphs

Cubics

Examples

1. Sketch the curve with equation

We consider the shape, the roots and the y – intercept.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Equation | If  | Resulting Shape | As As If  | Resulting Shape |
| As As  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

2. Sketch the curve with equation

3. Sketch the curve with equation

4. Sketch the curve with equation

5. Sketch the curve with equation

Finding the equation: example

The graph shows a sketch of the curve with equation . The curve passes through the point (–1, 0) and touches the -axis at the point (2, 0). The curve has a maximum at the point (0, 4). The equation of the curve can be written in the form where , and are integers.

Calculate the values of .



Test Your Understanding:

1. Sketch the curve with equation

2. Sketch the curve with equation

3. A curve has this shape , touches the axis at 3 and crosses the axis at -2. Give a suitable equation for this graph.

4. Extension. Sketch the curve with equation

[MAT 2012 1E] Which one of the following equations could possibly have the graph given below?



1.
2.
3.
4.

[MAT 2011 1A] A sketch of the graph appears on which of the following axis?



Exercise 4A Page 62