**4.4 PART 2: The Discriminant**

**Objectives:**

* Use the discriminant to determine the nature of the roots of a quadratic equation

The Discriminant is everything under the radical sign in the quadratic formula.

|  |
| --- |
| discriminant = |

* The **sign** of the discriminant determines the types of roots of a quadratic equation

|  |  |  |  |
| --- | --- | --- | --- |
| **Discriminant** | **Quadratic Formula** | **Types of roots (Nature)** | **Graph** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Ex. 2: Without solving, determine the nature of the roots of the quadratic equation:



(a) 



(b) 



Ex. 3: For what values of k does  have 2 equal real roots?



Ex. 4: A rectangular garden has an area of 324 square metres. Is it possible to enclose the garden on all four sides using 70 m of fencing? Explain.



We now have 4 methods to “solve” quadratic equations:



1. Graphing (either the corresponding function or a related system of functions).
2. Factoring



1. Completing the square



1. Quadratic Formula

