**6.5 Interpreting Quadratic Equation Roots**

How many solutions (zeros)?

* Put each equation into quadratic formula, what do you notice?

|  |  |  |
| --- | --- | --- |
| Equation | Quadratic Formula | Sketch |
| y = -x2 + x + 6 |  |  |
| y = x2 - 6x + 9 |  |  |
| y = 2x2 - 4x + 5 |  |  |

Based on your findings, how can we quickly check the number of solutions?

In Quadratic Formula,

The is called the **Discriminant (D)**. Therefore,



D =

* The discriminant gives the number of real solutions to a quadratic equation



|  |  |  |  |
| --- | --- | --- | --- |
| Term | D = | Example | Sketch |
| Two Real Roots | > 0 | x2 – 6x + 5 = 0 |  |
| Two Equal Roots (Double Root) | = 0 | x2 + 6x + 9 = 0 |  |
| No Real Roots | < 0 | x2 – 6x + 13 = 0 |  |

Example 3: Determine the number of real solutions that each equation has:



|  |  |
| --- | --- |
| 1. 0 = 2(x-3)2 + 5 | 1. 0 = 3x2 + 5x -4 |
| **HOMEWORK p.349 # 1-5, 7-11**  **Reading** Examples 1 & 2 on p.346-349 is extra support | |