**Quadratic Transformations Notes**

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| **Role of a:**  **Direction of Opening:**   * When **a** is positive, the parabola opens \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * When **a** is negative, the parabola opens \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   **Shape:**   * If , the graph is **vertically stretched** by a factor of **a** * If , the graph is **vertically compressed** by a   factor of **a**   * If , the graph is **reflected** across the x-axis | | | | **Role of h:**  **Properties:**   * If , the graph is **translated horizontally h** units to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * If , the graph is **translated horizontally h** units to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   **Relation to the Vertex**:   * The value of h is the \_\_\_\_\_-coordinate of the vertex. | | | |
| **Role of k:**  **Properties:**   * If, the graph is **vertically translated k** units \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * If , the graph is **vertically translated k** units \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   **Relation to the Vertex:**   * The value of k is the \_\_\_\_\_-coordinate of the vertex. | | | | Example:  **State:**   1. Direction of opening: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. Stretch or Compression: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. Transformations: 4. Coordinates of the vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. Domain and Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **Equation** | **Value of a** | **Value of h** | **Value of k** | **Vertex** | **Transformations starting from** | **Domain and Range** |  |
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