Section 3.5. Inequalities Involving Quadratic Functions

Note. In this section we solve inequalities involving a quadratic function. This idea will be seen again in Calculus 1 (MATH 1910) when graphing third and fourth degree polynomials (see my online Calculus 1 notes on 4.3. Monotonic Functions and The First Derivative Test and 4.4. Concavity and Curve Sketching).

Note. To solve the inequality $ax^2 + bx + c > 0$, where $a \neq 0$, we could graph the function $f(x) = ax^2 + bx + c$ and, from the graph, determine where it is above the x-axis; that is, where $f(x) > 0$. To solve the inequality $ax^2 + bx + c < 0$, where $a \neq 0$, we could graph the function $f(x) = ax^2 + bx + c$ and, from the graph, determine where it is below the x-axis; that is, where $f(x) < 0$. If the inequality is not strict, include the x-intercepts, if any, in the solution.

Examples. Page 160 Numbers 4, 16, and 34.

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