Coreq Support for Section 4.2

Topic 1: Determining if the Graph of a Quadratic Function Opens Up or Down

Whether a quadratic function is written in the form $f(x) = a(x-h)^2 + k$ or in the form $f(x) = ax^2 + bx + c$, the value of a determines the direction that the parabola opens:

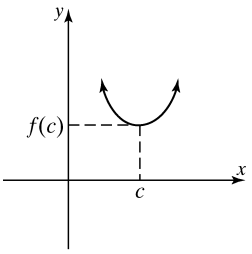
If $a > 0$ the parabola opens up and has a minimum value at the vertex.
If $a < 0$, the parabola opens down and has a maximum value at the vertex.

Topic 2: Determining Relative Maximum and Relative Minimum Values of a Function

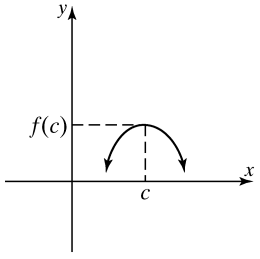
In section 3.2, we learned how to identify relative maximum and minimum values of a function when given its graph.

When a function $f(x)$ changes from increasing to decreasing at a point $(c, f(c))$, then f is said to have a relative maximum at $x = c$. The relative maximum value is $f(c)$.

When a function $f(x)$ changes from decreasing to increasing at a point $(c, f(c))$, then f is said to have a relative minimum at $x = c$. The relative minimum value is $f(c)$.



The relative minimum occurs at $x = c$, the relative minimum value is $f(c)$.



The relative maximum occurs at $x = c$, the relative maximum value is $f(c)$.

Topic 3: Adding and Subtracting Polynomials; Multiplying a Polynomial by a Monomial