



Vocabulary: Quadratics in Factored Form



Vocabulary

- Factored form of a quadratic function – a function of the form $y = a(x - r_1)(x - r_2)$, where $a \neq 0$ and r_1 and r_2 are the roots of the related equation.
- Linear factor – a first-degree factor of a polynomial.
 - For example, the polynomial $x^2 - 2x - 8 = (x + 2)(x - 4)$, so the linear factors of $x^2 - 2x - 8$ are $(x + 2)$ and $(x - 4)$.
- Parabola – the graph of a quadratic function.
 - For example, the graph of $y = (x + 2)(x - 4)$ shown to the right is a parabola.
- Polynomial – a monomial or sum of monomials.
 - Each monomial is called a *term* of the polynomial.
 - For example, $x^2 - 2x - 8$ is a polynomial with three terms.
- Quadratic function – a function in which y depends on the square of x .
 - The polynomial form of a quadratic function is $y = ax^2 + bx + c$ and the factored form is $y = a(x - r_1)(x - r_2)$, where $a \neq 0$.
 - The graph of a quadratic function is always a parabola.
- Root of an equation – a quantity that makes the related function equal to 0.
- Vertex of a parabola – the point that is the maximum or minimum of a parabola.
 - The vertex is the *minimum* when the parabola opens up, and it is the *maximum* when the parabola opens down.
 - For example, the vertex of the parabola shown above is a minimum.
- x-intercept – the x -coordinate where a graph intersects the x -axis.
 - For example, the x -intercepts of the graph above are -2 and 4 .

