Quadratic Functions

November 23, 2016

1 Quadratic Functions

When $a \neq 0$, quadratic quation $ax^2 + bx + c = 0$ has two solutions and the roots are $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$.

$$\begin{aligned} y &= ax^2 + bx + c \\ &= a\left(x^2 + 2 \times \frac{b}{2a}x + \frac{c}{a}\right) \\ &= a\left(x + \frac{b}{2a}\right)^2 - \frac{b^2}{4a} + c \end{aligned}$$

Vertex of the parabola, $y = f(x)$ is $\left(-\frac{b}{2a}, c - \frac{b^2}{4a}\right)$.

$d = b^2 - 4ac$	comment about roots
$d > 0$	roots are real and distinct
$d = 0$	roots are real and same
$d < 0$	roots are complex

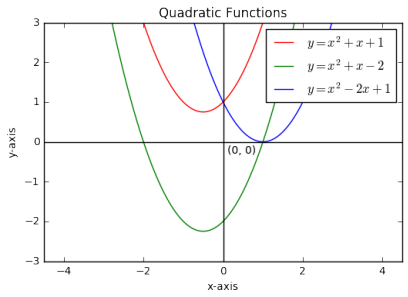

Figure 1: Quadretic Functions

2 Conclusion

Congratulations!!! You are now a LaTeX user.