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Resource ID#: 42439

Primary Type: Problem-Solving Task

Building a General Quadratic Function

In this resource, a method of deriving the quadratic formula from a theoretical standpoint is demonstrated. This task is for instructional purposes only and builds on "Building an explicit quadratic function."

Building a General Quadratic Function (Microsoft Word): This file includes the task and related information in Microsoft Word format.
Building a General Quadratic Function (PDF): This file includes the task and related information in PDF format.

General Information

Subject(s): Mathematics

Grade Level(s): 9, 10, 11, 12

Intended Audience: [Educators](#), [Students](#), [Parents](#)

Freely Available: Yes

Keywords: Deriving the quadratic formula, quadratic formula, Building a General Quadratic Function, quadratic function, cpalms, icpalms, illustrativemathematics.org, illustrative mathematics, tasks, mathematics, math, Florida standards, resource, free, freely available, problems-based learning, student activities

Instructional Component Type(s): [Problem-Solving Task](#)

Resource Collection: Illustrative Mathematics

Source and Access Information

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District/Organization of Contributor(s): Leon

Is this Resource freely Available? Yes

Access Privileges: Public

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Aligned Standards

Name	Description
MAFS.912.A-SSE.2.3:	<p>Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★</p> <p>a. Factor a quadratic expression to reveal the zeros of the function it defines.</p> <p>b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.</p> <p>c. Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.</p>
	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both

[MAFS.912.F-BF.2.3:](#)

positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.