## Unit 6 Lesson 9: Standard Form and Factored Form

### 1 Math Talk: Opposites Attract (Warm up)

#### Student Task Statement

Solve each equation mentally.

$40−8=40+n$

$25+-100=25−n$

$3−\frac{1}{2}=3+n$

$72−n=72+6$

### 2 Finding Products of Differences

#### Student Task Statement

1. Show that $\left(x−1\right)\left(x−1\right)$ and $x^{2}−2x+1$ are equivalent expressions by drawing a diagram or applying the distributive property. Show your reasoning.
2. For each expression, write an equivalent expression. Show your reasoning.
	1. $\left(x+1\right)\left(x−1\right)$
	2. $\left(x−2\right)\left(x+3\right)$
	3. $\left(x−2\right)^{2}$

#### Activity Synthesis



### 3 What is the Standard Form? What is the Factored Form?

#### Student Task Statement

The quadratic expression $x^{2}+4x+3$ is written in **standard form**.

Here are some other quadratic expressions. The expressions on the left are written in standard form and the expressions on the right are not.

Written in standard form:

$x^{2}–1$

$x^{2}+9x$

$\frac{1}{2}x^{2}$

$4x^{2}–2x+5$

$-3x^{2}–x+6$

$1−x^{2}$

Not written in standard form:

$\left(2x+3\right)x$

$\left(x+1\right)\left(x−1\right)$

$3\left(x−2\right)^{2}+1$

$-4\left(x^{2}+x\right)+7$

$\left(x+8\right)\left(-x+5\right)$

1. What are some characteristics of expressions in standard form?
2. $\left(x+1\right)\left(x−1\right)$ and $\left(2x+3\right)x$ in the right column are quadratic expressions written in **factored form**. Why do you think that form is called factored form?



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