Name _____ Date _____

Polynomial Identities as Complex Numbers - Guided Lesson Explanation

Explanation#1

$x^2 + 49$

$= x^2 - (\sqrt{-49})^2$ (Rationalize the whole number as a form of i)

$= (x+7i)(x-7i)$ (Factor)

The answer is: $(x+7i)(x-7i)$.

Explanation#2

Step 2) Now solve it.

$x^2 + 21$

$= x^2 - (\sqrt{-21})^2$ (Rationalize the whole number as a form of i)

$= (x+ i\sqrt{21})(x- i\sqrt{21})$ (Factor)

The answer is: $(x+ i\sqrt{21})(x- i\sqrt{21})$.

Explanation#3

$x^2 + 87$

$= x^2 - (\sqrt{-87})^2$ (Rationalize the whole number as a form of i)

$= (x+ i\sqrt{87})(x - i\sqrt{87})$ (Factor)

The answer is: $(x+ i\sqrt{87})(x- i\sqrt{87})$.