

Unit 2

Homework 2 notes

Sep 7-10:29 AM

Example 1

Simplify the expression $(-5x + 2)(3x^2 - x + 4)$.

Sep 14-3:47 PM

Example 3

Simplify the expression $(3x^4 + 10x^2 - 4x)(x^3 - 8x^2 + x)$.

Sep 14-3:49 PM

Example 4

Simplify the expression $(2x^3 + x^2 - 4x)^2$.

Sep 14-3:49 PM

can be used to expand or factor polynomial expressions.

A is a true equation that is often generalized so it can apply to more than example.

The tables that follow shows the most common polynomial identities, including the steps of how to work them out.

Square of Sums Identity	
Formula	Steps
With two variables: $(a + b)^2 = a^2 + 2ab + b^2$	$(a + b)^2$ $= (a + b)(a + b)$ $= a^2 + ab + ab + b^2$ $= a^2 + 2ab + b^2$
With three variables: $(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ac$	$(a + b + c)^2$ $= (a + b + c)(a + b + c)$ $= a^2 + ab + \underline{ac} + ab + b^2 + \underline{bc} + \underline{ac} + \underline{bc} + c^2$ $= a^2 + b^2 + c^2 + 2ab + 2bc + 2ac$

Sep 14-3:52 PM

Difference of Two Squares Identity	
Formula	Steps
$a^2 - b^2 = (a + b)(a - b)$	$a^2 - b^2$ $= a^2 + ab - ab + b^2$ $= (a + b)(a - b)$

Sum of Two Cubes Identity	
Formula	Steps
$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$	$a^3 + b^3$ $= a^3 - a^2b + ab^2 + a^2b - ab^2 + b^3$ $= (a + b)(a^2 - ab + b^2)$

Difference of Two Cubes Identity	
Formula	Steps
$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$	$a^3 - b^3$ $= a^3 + a^2b + ab^2 - a^2b - ab^2 - b^3$ $= (a - b)(a^2 + ab + b^2)$

Sep 14-3:55 PM

Example 5

Use a polynomial identity to expand the expression $(x - 14)^2$.

Sep 14-3:56 PM

Example 6

Use a polynomial identity to factor the expression $x^3 + 125$.

Sep 14-3:57 PM