Lesson 13: Mastering Factoring

Classwork

Opening Exercises

Factor each of the following expressions. What similarities do you notice between the examples in the left column and those on the right?

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|  |  |
| 1.
 |  |

**Example 1**

Write as the product of two factors.

**Example 2**

Factor .

Exercise 1

1. Factor the following expressions:
	1.

Exercises 2–4

Factor each of the following, and show that the factored form is equivalent to the original expression.

1.

Lesson Summary

In this lesson we learned additional strategies for factoring polynomials.

* The difference of squares identity can be used to to factor more advanced binomials.
* Trinomials can often be factored by looking for structure and then applying our previous factoring methods.
* Sums and differences of cubes can be factored by the formulas

Problem Set

1. If possible, factor the following expressions using the techniques discussed in this lesson.

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| --- | --- |
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1. Consider the polynomial expression .
	1. Is factorable using the methods we have seen so far?
	2. Factor first as a difference of cubes, then factor completely: .
	3. Factor first as a difference of squares, then factor completely:
	4. Explain how your answers to parts (b) and (c) provide a factorization of .
	5. If a polynomial can be factored as either a difference of squares or a difference of cubes, which formula should you apply first, and why?
2. Create expressions that have a structure that allows them to be factored using the specified identity. Be creative and produce challenging problems!
	1. Difference of squares
	2. Difference of cubes
	3. Sum of cubes