Review Lesson 6
Factoring

NAME:

Start by navigating to the Online Lesson for instructions.

Objectives

- Factor out the greatest common factor.
- Factor by grouping.
- Factor special patterns.

Introduced in:

Algebra 1: Principles of Secondary Mathematics
Lessons 21 and 22

Factoring

Fill in the notes as you watch the video in the Online Lesson.

- There are many ways to factor an expression. Consider this order for factoring polynomial expressions:

  1) Find the greatest common monomial factor _____ (other than 1).

  2) Factor by _____ (when given 4 terms).

  3) Analyze _____ patterns.

  4) Factor _____ products.

  5) Factor _____ using your preferred method.

- **Steps 1 and 2** both require determining and _____ the GCF.

- **Step 3** refers to these patterns for factored trinomial expressions:

Example	$x^2+7x+10$ $(x+2)(x+5)$	$x^2-7x+10$ $(x-2)(x-5)$	$x^2-3x-10$ $(x+2)(x-5)$	$x^2+3x-10$ $(x-2)(x+5)$
Sign Pattern	All terms positive _____	–, + pattern _____	End term (–) _____	End term (–) _____

- **Step 4** reminds you to look for:

A _____ of two squares A _____ trinomial

Example:

$$x^2 - y^2$$
$$(x - y)(x + y)$$

Example:

$$x^2 + 2xy + y^2 \qquad x^2 - 2xy + y^2$$
$$(x + y)(x + y) \qquad (x - y)(x - y)$$
$$(x + y)^2 \qquad (x - y)^2$$

- **Step 5** will be reviewed in Review Lesson 7.

Example 1

Complete the example as you watch the video in the Online Lesson.

Factor by grouping.

$5x^2 - 20x - 6mx + 24m$

Implement

$5x^2 - 20x + \ - 6mx + 24m$

$(5x^2 - 20x) + (-6mx + 24m)$

Example 2

Complete the example as you watch the video in the Online Lesson.

Factor.

$81x^2 - 16$

Implement

$(? + ?)(? - ?)$

Explain

- Analyze sign patterns
- Difference of two squares

Example 3

Complete the example as you watch the video in the Online Lesson.

Factor.

$25x^2 - 60x + 36$

Implement

Explain

- Analyze sign patterns
- Perfect square trinomial

Practice

Factor out the GCF.

1) $5x^2 + 35x + 5$

2) $14x^3y - 8xy$

Factor by grouping.

3) $3x^2 - 5x + 6xy - 10y$

4) $10x^2z + 12xz - 15x - 18$

Factor the perfect square trinomial.

5) $x^2 + 22x + 121$

6) $4x^2 + 20x + 25$

Factor the difference of two squares.

7) $4x^2 - 25$

8) $100x^2 - 49y^2$

Factor.

9) $12x^2y^3 - 14xy^2 + 18xy$

10) $100x^4 + 225x^2 + 4x^2y^2 + 9y^2$

11) $9w^2 + 30w + 25$

12) $6xy + 4x + 9y + 6$

13) $225x^2y^2 - 196w^2$

14) $49gh^2 - 21g^2h \ + 7gh$

15) $a^2 - 2ab + b^2$

16) $a^2 - b^2$

To continue, return to the Online Lesson.