

## Lab Framework

**Text:** Cord Applied Math

**Unit number and title:** 23 Factoring

**Short Description:** Students will take zip lock bag with square shapes and match the like terms.

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### Lab Title Factoring

### LAB PLAN

**TEACHER:** Teacher Prep/ Lesson Plan

- **Lab Objective**

To help students be able to match equivalent factoring expressions

- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)

Students need to understand the process of FOIL

- **Vocabulary**

Factor, FOIL, Polynomial, Monomial, Trinomial

- **Materials List**

Puzzle (worksheet cut up and put into ziplock bag)

- **State Standards addressed**

Math: 1. 1. Understand and apply concepts and procedures from a number sense.

1.5.5. Apply processes to simplify expressions.

1.5.6. Apply procedures to solve equations, and systems of equations.

Apply processes that use repeated addition or repeated multiplication

2.2.2. Apply mathematical tools to solve the problem.

5.3 Relate mathematical concepts and procedures to real-world situations

Reading: 1.2 Use vocabulary strategies to comprehend text.

1.2.1 Demonstrate evidence of reading comprehension

Writing: 1.2 Use style appropriate to the audience and purpose, use voice, word choice, and sentence fluency to interpret.

- **Leadership Skills**

**1.4 Students will be involved in activities that require applying theory, problem solving, and using creative and critical thinking skills while understand outcomes of related decisions.**

- **SCAN Skills/Workplace Skills**

1.2 The student will demonstrate the ability to acquire information

1.3 The student will demonstrate an understanding of complex-inter-relationships

- **Set-up information**

Each student needs zip lock bag with square puzzle

**Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required**)

Put groups of two together by established group guidelines. Each group will take puzzle and figure out factoring in order to match up squares to complete the puzzle.

- **Teacher Assessment of student learning** (scoring guide, rubric)

Students will work as teams and be scored on participation, ability to complete the square by solving the various factoring problems.

- **Summary of learning** (to be finished after student completes lab)

-discuss real world application of learning from lab

-opportunity for students to share/present learning

Students will see that by using repetition and practice with formulas that they become quicker at solving and factoring problems. Students will learn to work together as a team and gain knowledge from other students to learn concept.

- **Optional activities**

- **Career Applications**

- **Problem solving and teamwork**

Cut out squares and students will match them up to complete square.

	$(x-2)(x+2)$		$(4x-1)^2$		$(6x+1)(x-2)$		$(x+1)(x-1)$	
$(5x-4)^2$		$x^2-4x-12$	$(9-x)(2+x)$	$x^2-16$	$(4-x)(4+x)$	$6x^2+13x+6$	$(3+2x)(2+x)$	$x^2+4x+24$
	$x^2+6x+9$		$x^2-10x+24$		$25x^2-16$		$6x^2+41x+30$	
	$(x+3)^2$		$(x-4)(x-6)$		$(5x-4)(5x+4)$		$(x+6)(6x+5)$	
$(6-x)(2-x)$		$x^2-3x-18$	$(9+x)(6-x)$	$x^2+6x-16$	$(8+x)(2-x)$	$9x^2+12x+4$	$x^2(2+x)$	$x^2+7x-18$
	$4x^2-25$		$x^2-9$		$16x^2-1$		$x^2-7x+12$	
	$(2x+5)(2x-5)$		$(x+3)(x-3)$		$(4x-1)(4x+1)$		$(x-4)(x-3)$	
$(5+x)(2+x)$		$(x^2-6x-16)$	$(8-x)(2+x)$	$x^2-2x-15$	$(5-x)(3+x)$	$4x^2+x-5$	$(4x+5)(x-1)$	$6x^2-x-2$
	$x^2+4x+3$		$7x^2-19x+10$		$9x^2-4$		$x^2-8x+16$	
	$(x+3)(x+1)$		$(7x-5)(x-2)$		$(3x-2)(3x+2)$		$(x-4)^2$	
$(1+x)(2+x)$		$4x^2+20x+25$	$x^2(5+2x)$	$3x^2+2x-1$	$(1+x)(1-3x)$	$x^2-x-12$	$(4-x)(3+x)$	$x^2+16$
	$25x^2+20x+4$		$x^2+9$		$x^2+3x-10$		$x^2-15$	

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**LAB TITLE: Factoring**

**STUDENT INSTRUCTIONS:**

- **Statement of problem addressed by lab**  
Scrambled up terms need to be matched with like terms to complete a perfect square.
- **Grouping instructions and roles**  
Pair up with another student and work together to solve various factoring problems in order to complete a square.
- **Procedures** – steps to follow/instructions  
Take out squares and teammates start matching like terms. Students might want scratch paper and take math problem and change factor it or simplify it to find match.
- **Outcome instructions**  
Students will be able to simplify or factor out various polynomials
- **Assessment instructions** (peer-teacher)  
Participation and group interaction

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**Factor Lab Directions**  
**Simplifying and factoring Polynomials**

This exercise is to help students be able factor and combine like terms of polynomials. Students are to pair up in groups and work puzzle together.

1. Take out puzzle squares from zip lock bag.
2. Each student should have a scratch piece of paper and pencil to be able to work on factoring or combining like terms to match squares up.
3. All sides of each individual square should match up to the correct like term.

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