

Lesson 4-2 – Simplifying Polynomials with Algeblocks

Objectives:

- Students will divide positive integers from the multiplication table without remainders, as evidenced by them passing one-minute quizzes.
- Students will represent polynomials with Algeblocks, as evidenced by them completing a warm-up worksheet where they do so.
- Students will simplify polynomials using Algeblocks, as evidenced by them completing an in-class lab and a homework assignment where they do so.

Materials:

- “Minute Quiz 4-2” for each student
- “Warm-up 4-2” for each student
- “Unit 4 Calendar” transparency
- Packet of “Lab 4-2”, and “Homework 4-2” for each student.
- “Lab 4-2” transparency
- Algeblocks class sets

Do Now:

- Park stuff
- Work on warm-up
- Get ready for minute quiz

Homework:

- Homework #4-2
- 3 hours of ALEKS due Today

Time	Activity
Before Bell	AGENDA, DO NOW, AND WARM-UPS Write the agenda and the do now on the board. As students enter the classroom, shake their hands, give them a copy of the warm-up , and direct them to follow the directions listed for the “do now.”
10 min	MINUTE QUIZ, WARM-UPS, ATTENDANCE, AND HOMEWORK COLLECTION Minute Quiz and Warm-up When the bell rings, quickly go around and put the minute quiz on each student’s desk, face down. Then, start everyone on the quiz at the same time and give everyone one minute. Students should work on the warm-up when they’re done with the minute quiz. After the minute is over, have a student collect the minute quizzes and give them to the teacher’s aide (TA) to grade. Attendance and Collect Homework While students work on the warm-up, take attendance and have the TA collect homework & stamp homework checkers.
5 min	ANNOUNCEMENTS Explain to students that you have a couple announcements to make. 3 Hours of ALEKS due Today Ask students, <i>How many hours of ALEKS are due today?</i> Point to the homework assignment that indicates the answer. <i>[Three.]</i> Unit Calendar Put the unit 4 calendar transparency on the overhead so that students can see it. Point to lesson 4-1 and review what was covered last time: <i>Last time, we introduced the unit on polynomials, that we will be adding, subtracting, multiplying, and dividing them using Algeblocks. Things may be lame or boring for some of you now, but we will solve some crazy problems soon—just stick with me! Remember, these Algeblocks will make it really easy to solve super-complicated problems in a snap!</i> Now, point to today’s lesson and explain, <i>Today, we will learn how to simplify polynomials using Algeblocks. That’s taking complicated polynomials and writing them in a nicer way, such as writing them smaller.</i>
25 min	ALGEBLOCKS LAB: SIMPLIFYING POLYNOMIALS Establishing Norms

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	<p>Remind students of the established norms for using the Algeblocks. Make sure students understand that Algeblocks are tools and not toys. Students who are misusing the Algeblocks in any way, especially throwing them, will have to sit alone away from the rest of the class and complete the work without the blocks. If misuse occurs a second time, the student will have to work without blocks for the rest of the unit.</p> <p>Free Time with the Algeblocks Explain that you'll give students two minutes to fiddle with the blocks, and that you will count down at the end of the two minutes. When you count down, all the blocks will need to be "earthquake safe." Pass out the containers of Algeblocks so that two students share a set. Give students two minutes to play with the Algeblocks.</p> <p>Review: Names of the Algeblocks Go through the top of Lab 4-2 to review the name of each Algeblock. You have a transparency of this lab worksheet.</p> <p>Representing Polynomials using Algeblocks Go through the second half of Lab 4-2 to simplify polynomials using Algeblocks. You have a transparency of this lab worksheet.</p>
35 min	<p style="text-align: center;">ALEKS</p> <p>After all Algeblocks have been put away, dismiss students by column to get laptops for ALEKS. While students work on ALEKS, have the TA go around and stamp homework & notes checkers. For today's notes points, students must've completed the Algeblocks lab.</p>
5 min	<p style="text-align: center;">CLEAN UP</p> <p>Students must check the laptops with the teacher or the TA before putting them away. After putting the laptops away, students should pack up, sit in their seats, and wait to be dismissed by the teacher (not by the bell).</p>

Solve the following division problems. You have exactly one minute!

$4 \div 2 =$

$10 \div 5 =$

$36 \div 4 =$

$45 \div 5 =$

$3 \div 1 =$

$10 \div 2 =$

$9 \div 3 =$

$12 \div 3 =$

$99 \div 11 =$

$33 \div 3 =$

$24 \div 8 =$

$90 \div 10 =$

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$27 \div 3 =$

$48 \div 6 =$

$44 \div 11 =$

$88 \div 8 =$

$22 \div 2 =$

$28 \div 4 =$

$33 \div 3 =$

$99 \div 9 =$

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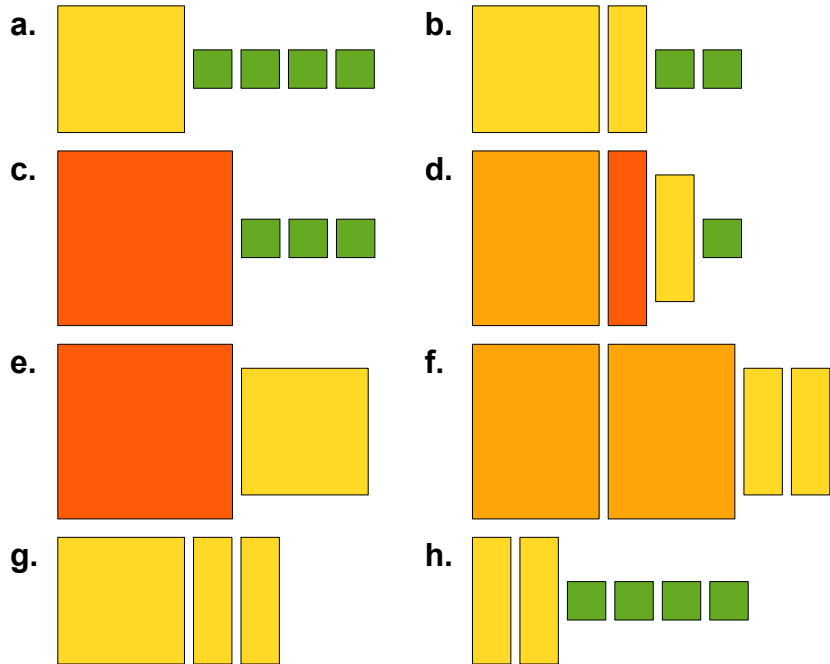
$36 \div 4 =$

$40 \div 8 =$

$54 \div 6 =$

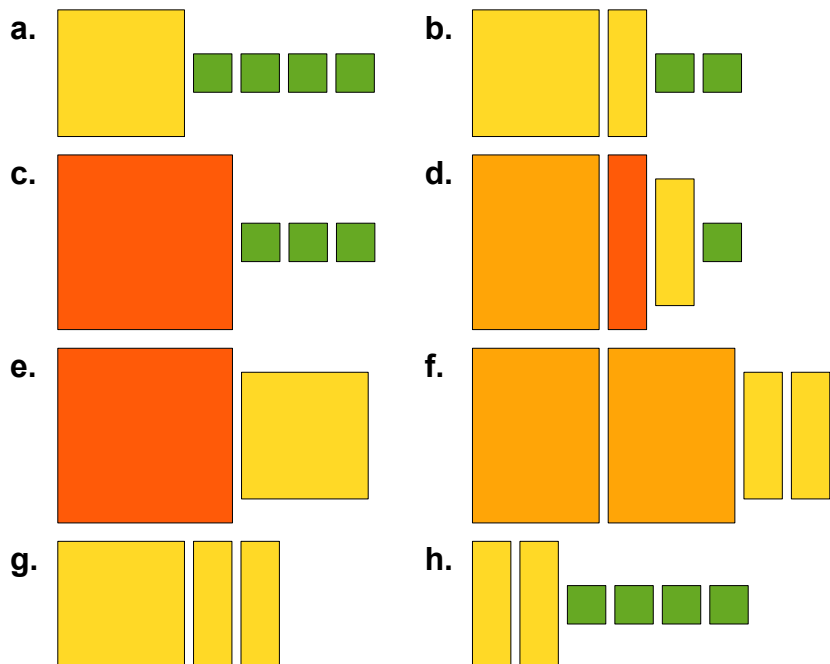
Match each polynomial with the set of Algeblocks that represent it.

- 1. $x^2 + 2x$ _____
- 3. $xy + y + x + 1$ _____
- 5. $x^2 + y^2$ _____
- 2. $x^2 + x + 2$ _____
- 4. $y^2 + 3$ _____
- 6. $2xy + 2x$ _____
- 7. $2x + 4$ _____
- 8. $x^2 + 4$ _____



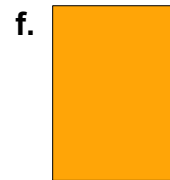
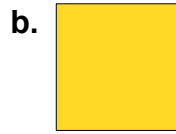
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- 4. $y^2 + 3$ _____
- 6. $2xy + 2x$ _____
- 7. $2x + 4$ _____
- 8. $x^2 + 4$ _____



Review: Match each name with the correct Algeblock.

1. 1 _____
2. x _____
3. x^2 _____
4. y _____
5. y^2 _____
6. xy _____



Represent each polynomial using Algeblocks. Then, simplify by removing zero pairs and combining like terms. Finally, sketch (draw) the result and write the simplified polynomial.

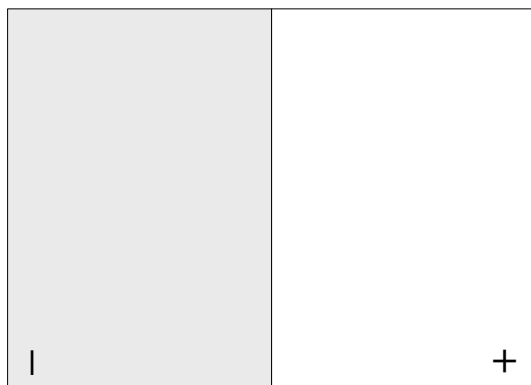
7. $3x + 4 - x - 1$



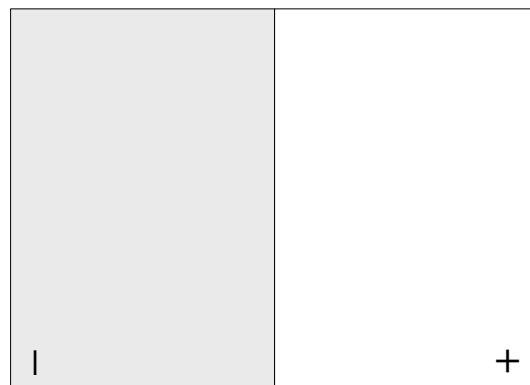
8. $2x^2 + 4xy - 4x^2 - xy$



9. $y^2 - 2x - 3y^2 - x + 3$



10. $4x^2 + 2x - x - 1 - 3x^2$



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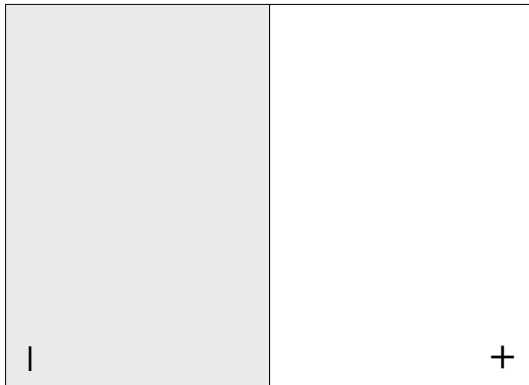
1. $3y + 2xy - 2y$



2. $xy - 2y - 2x + 4xy$



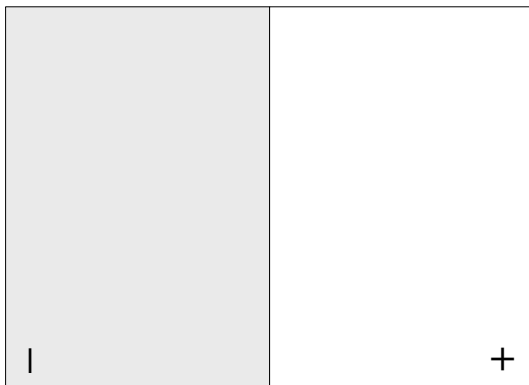
3. $y + 3xy - 4y - xy$



4. $5 - 2x + 3 - 3x$



5. $-4 - 3x^2 + 2 - 2x^2$



6. $4xy - 3 + 2xy - 5 - 2y$