

Unit 4 Lesson 9: Combining Like Terms (Part 1)

1 Why is it True? (Warm up)

Student Task Statement

Explain why each statement is true.

1. $5 + 2 + 3 = 5 + (2 + 3)$
2. $9a$ is equivalent to $11a - 2a$.
3. $7a + 4 - 2a$ is equivalent to $7a + -2a + 4$.
4. $8a - (8a - 8)$ is equivalent to 8.

2 A's and B's

Student Task Statement

Diego and Jada are both trying to write an expression with fewer terms that is equivalent to $7a + 5b - 3a + 4b$

- Jada thinks $10a + 1b$ is equivalent to the original expression.
- Diego thinks $4a + 9b$ is equivalent to the original expression.

1. We can show expressions are equivalent by writing out all the variables. Explain why the expression on each row (after the first row) is equivalent to the expression on the row before it.

$$7a + 5b - 3a + 4b$$

$$(a + a + a + a + a + a + a) + (b + b + b + b + b) - (a + a + a) + (b + b + b + b)$$

$$(a + a + a + a) + (a + a + a) + (b + b + b + b + b) - (a + a + a) + (b + b + b + b)$$

$$(a + a + a + a) + (b + b + b + b + b) + (a + a + a) - (a + a + a) + (b + b + b + b)$$

$$(a + a + a + a) + (b + b + b + b + b) + (b + b + b + b)$$

$$(a + a + a + a) + (b + b + b + b + b + b + b + b + b + b) 4a + 9b$$

2. Here is another way we can rewrite the expressions. Explain why the expression on each row (after the first row) is equivalent to the expression on the row before it. $7a + 5b - 3a + 4b$

$$7a + 5b + (-3a) + 4b \quad 7a + (-3a) + 5b + 4b \quad (7 + -3)a + (5 + 4)b \quad 4a + 9b$$

3 Making Sides Equal

Student Task Statement

Replace each ? with an expression that will make the left side of the equation equivalent to the right side.

Set A

1. $6x + ? = 10x$

2. $6x + ? = 2x$

3. $6x + ? = -10x$

4. $6x + ? = 0$

5. $6x + ? = 10$

Check your results with your partner and resolve any disagreements. Next move on to Set B.

Set B

1. $6x - ? = 2x$

2. $6x - ? = 10x$

3. $6x - ? = x$

4. $6x - ? = 6$

5. $6x - ? = 4x - 10$