

Lesson 6 - Add Linear Expressions

You can use models to add linear expressions.

Example 1

$$\text{Add } (3x + 5) + (2x + 3).$$

Step 1 Model each expression.

 $3x + 5$	 $2x + 3$
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Step 2 Combine like tiles and write an expression for the combined tiles.

 $3x + 2x + 5 + 3$	
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$$\text{So, } (3x + 5) + (2x + 3) = 5x + 8.$$

Example 2

$$\text{Add } (x - 2) + (-2x + 4).$$

Step 1 Model each expression.

 $x - 2$	 $(-2x) + 4$
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Step 2 Combine like tiles and write an expression for the combined tiles.

 $x + (-2x) + (-2) + 4$	
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Step 3 Remove all zero pairs and write an expression for the remaining tiles.

$$(-x) + 2$$

$$\text{So, } (x - 2) + (-2x + 4) = -x + 2.$$

Exercises

Add. Use models if needed.

1. $(5x + 2) + (3x + 1)$

$\begin{array}{r} x \\ \hline 5x \\ + 3x \\ \hline 8x \end{array}$	$\begin{array}{r} \text{CONSTANTS} \\ \hline 2 \\ + 1 \\ \hline 3 \end{array}$
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FINAL ANSWER
8x + 3

2. $(-8x + 1) + (-2x + 6)$



3. $(-7x + 4) + (x - 5)$

$\begin{array}{r} x \\ \hline -7x \\ + 1x \\ \hline -6x \end{array}$	$\begin{array}{r} \text{CONSTANTS} \\ \hline 4 \\ + -5 \\ \hline -1 \end{array}$
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FINAL ANSWER
-6x - 1

4. $(-6x + 1) + (4x - 1)$

Lesson 6 Skills Practice

Add Linear Expressions

Add. Use models if needed.

1. $(5x + 7) + (x + 2)$

2. $(-6x + 3) + (x - 7)$

5. $(-x + 3) + (4x - 10)$

6. $(5x + 4) + (-8x - 2)$

9. $(-9x + 1) + (-7x + 8)$

10. $(-3x - 9) + (4x + 8)$

13. $(2x - 1) + (-3x + 7)$

14. $(-5x + 4) + (-9x - 2)$

17. Find the sum of $(10x + 3)$ and $(-4x - 2)$.

19. **GEOMETRY** Write and simplify an expression to represent the perimeter of the triangle shown. Then find the value of x if the perimeter is 45 feet.

