

**Example 1** Use the vertical format to find the sum.

(A)  $5x^2 + 2x - 1$  and  $4x^2 - x + 2$   
 $(5x^2 + 2x - 1) + (4x^2 - x + 2)$

Rewrite the problem, vertically aligning the terms.

$$\begin{array}{r} 5x^2 + 2x - 1 \\ + 4x^2 - 1x + 2 \\ \hline 9x^2 + 1x + 1 \end{array}$$

Simplify.

$$9x^2 + x + 1$$

(B)  $3y^3 + 2y + 1$  and  $y^2 - 1$   
 $(3y^3 + 2y + 1) + (y^2 - 1)$

Rewrite the problem, vertically aligning the terms.

$$\begin{array}{r} 3y^3 + \square y^2 + 2y + \square \\ + 0y^3 + 1y^2 + \square y + \square \\ \hline 3y^3 + \square + 2y + \square \end{array}$$

Simplify.

\_\_\_\_\_

**Reflect**

2. Is the sum of two polynomials always another polynomial? Explain.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Your Turn**

Add the given polynomials using the vertical format.

3.  $(-x^2 - 1)$  and  $(4x^2 - x)$   
 $3x^2 - x - 1$   
 Degree: 2  
 LC: 3  
 constant

5.  $x - 1$  and  $4x - 6$

4.  $(-z^3 - 2z - 1)$  and  $(2z^3 - z^2 + 2z)$   
 $z^3 - z^2 - 1$   
 Degree: 3  
 LC: 1

819  $2x^2 \cdot 3x^3 = 6x^5$   
 $2x^2 + 3x^3 = \text{Nothing}$

$\downarrow$   
 $\begin{array}{r} 29 \\ + 17 \\ \hline 6 \end{array}$   
 Vertical  
 X

$29 + 17 =$

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# ★ Evaluate: Homework and Practice



- Online Homework
- Hints and Help
- Extra Practice

1. In adding with tiles, one step corresponds to grouping like terms. Do you think this is more similar to the horizontal or vertical method? Explain your reasoning.

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2. Show how to add  $(x^2 + x)$  and  $(-x^2 - 2x)$  with tiles.

Model	Algebra
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Find each sum vertically.

3.  $(x^2 - x^4) + (x^4 - x^2)$

4.  $(y^2 - x^4) + (x^4 - x^2)$

$y^2 - x^2$  Done  
 or  
 $-x^2 + y^2$  LC: -1  
 Degree: 2

5. Add  $0.5x + 2$  and  $x^2 + 1.5x$ .

6.  $(2x + y + z) + (-x + y - z)$