

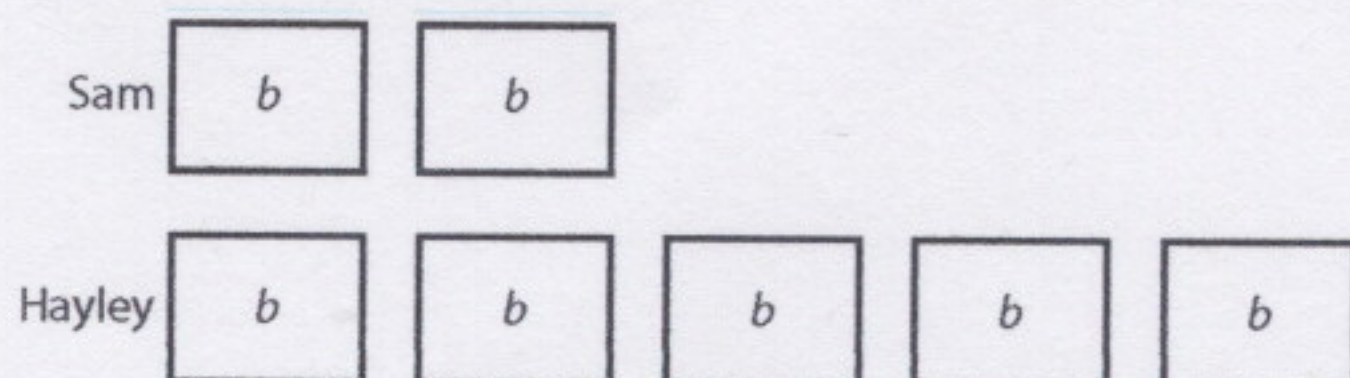
## Properties of Operations

Study the example showing how to use properties of operations to write equivalent expressions with variables. Then solve problems 1–9.

**Example**

Sam bought 2 granola bars and Hayley bought 5 granola bars. Each granola bar was the same price.

Write an expression for the total price of the granola bars. Then simplify the expression to create an equivalent expression. Use the model to help you.



$$2b + 5b = b(2 + 5) = 7b$$

- 1 What does  $b$  represent in the expressions?  
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- 2 What does  $2b + 5b$  represent?  
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- 3 Does the expression  $2b + 5b$  have like terms? Explain.  
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\_\_\_\_\_
- 4 What is the common factor of each term in the expression  $2b + 5b$ ? \_\_\_\_\_
- 5 Explain how to use the distributive property to create an expression that is equivalent to  $2b + 5b$ .  
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**Solve.**

**Use the situation below to solve problems 6–7.**

Larry bought 12 containers of pasta salad for a school picnic. Each container held the same number of ounces of salad. Students finished the pasta salad in 8 of the containers.

- 6 Let  $p$  equal the number of ounces of pasta salad in one container. Write an expression with two terms to represent how many ounces of pasta salad are left.

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- 7 Simplify the expression you wrote in problem 6 to create an equivalent expression. Use the distributive property.

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- 8 A soccer coach bought 16 medium T-shirts and 9 large T-shirts. Each T-shirt was the same price. Onaje and Paula tried to write equivalent expressions to represent the total price of the T-shirts. The expressions they wrote are shown below.

Onaje:  $16t + 9t = t(16 + 9) = 25t$

Paula:  $16t + 9t = 16 + 9 + 2t = 25 + 2t$

Whose expression is correct? Why is the other expression incorrect?

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- 9 Adem writes  $18y$  to simplify an expression with three like terms.

- a. What could the expression be?

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- b. Simplify the expression you wrote for part (a) to check your answer.

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