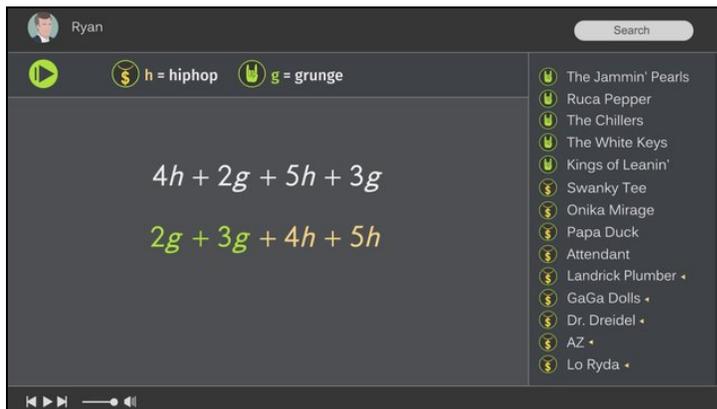Printable Worksheets from sofatutor.com

Writing Equivalent Algebraic Expressions with Addition and Subtraction

① **Create Algebraic Expressions from Scenarios.**

② Write Equivalent Algebraic Expressions with Addition.

③ Simplify Algebraic Expressions with Addition and Subtraction.

④ Write Algebraic Expressions from Real-world Scenarios.

⑤ Match expressions with their equivalent forms.

⑥ Identify the correct expressions.

➕ with lots of tips, answer keys, and detailed answer explanations for all of the problems.

⚠ The complete package, **including all problems, hints, answers, and detailed answer explanations** is available for all sofatutor.com subscribers.

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Worksheet: Writing Equivalent Algebraic Expressions with Addition and Subtraction
Mathematics / Middle School / Expressions and Equations / Use Properties of Operations to Generate Equivalent Expressions/ Writing Equivalent Algebraic Expressions with Addition and Subtraction

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Create Algebraic Expressions from Scenarios.

Match each sentence with the appropriate expression.

Match each scenario with the algebraic expression that represents the cost of that scenario.

1 $7x.$

A taxi ride costs a flat fee of $\$3$ plus $\$2$ per mile. The cost of a taxi ride is... dollars.   **A**

2 $2x + 5$

Dominic buys 3 baseball tickets and 2 football tickets. Dominic spent in total... dollars.   **B**

3 $2x + 3$

Admission to a fair costs $\$5$ and each carnival ride is $\$2$. A day at the fair costs in total... dollars   **C**

4 $5x + 2$

Alexandra buys 4 orders of nachos and 3 bags of popcorn from the concession stand. Alexandra spent in total...   **D**

5 $4x + 3y$

6 $x + 2y$

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Hints for solving these problems

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Create Algebraic Expressions from Scenarios.

Hint #1

Do not combine two terms unless they are like terms.

Hint #2

A one time fee or cost does not need a variable.

Hint #3

If there are two separate items, there should be two variables.

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Answers and detailed answer explanations for these problems

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Create Algebraic Expressions from Scenarios.

Answer key: A—3 // B—6 // C—2 // D—5

In the taxi ride scenario, every mile costs $\$2$. This cost can be represented by $\$2x$, where x represents the number of miles. Since you would have to pay $\$3$ regardless of how long the taxi ride is, this is a constant value and does not need to be associated with a variable. Therefore, this entire cost can be represented by $2x + 3$ dollars.

For the scenario with Dominic, since he is buying two separate kinds of tickets, each type of ticket should be represented by a different variable. You can let x represent the cost of a baseball ticket and y represent the cost of a football ticket. Because he buys 3 baseball tickets and 2 football tickets, the total cost can be written as $3x + 2y$ dollars.

For the fair scenario, admission to the fair is a one-time fee of $\$5$, so you do not need to associate this cost with a variable. Each ride, however, costs 2 dollars. If you let x represent the number of rides ridden, then the cost of the entire time at the fair can be written as $2x + 5$ dollars.

For the scenario with Alexandra, she is purchasing two separate kinds of snacks: nachos and popcorn. You can let x represent the cost of an order of nachos and y represent the cost of a bag of popcorn. Therefore, the total cost of all of her snacks is $4x + 3y$.

Because none of these expressions have like terms, they cannot be simplified any further.

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