
UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 1: Creating Linear Equations and Inequalities in One Variable

Instruction

Lesson 2.1.1: Creating Linear Equations in One Variable

Georgia Standard of Excellence

MGSE9–12.A.CED.1★

Warm-Up 2.1.1 Debrief

1. Write an algebraic expression to represent the cost of the tennis balls before taxes and shipping.

Andrew purchased 10 cans of tennis balls at an unknown price, x . Therefore, the expression to represent the cost of the tennis balls is $10x$.

2. Write an algebraic expression to represent the cost of the tennis balls with the discount, and simplify your expression.

First, Andrew will be charged the cost of the tennis balls ($10x$).

Then, 25% will be discounted or taken off the cost of the tennis balls, so $-0.25(10x)$.

Add these amounts to arrive at the price of the tennis balls.

$$10x - 0.25(10x) \quad \text{Write the expression.}$$

$$10x - 2.5x \quad \text{Multiply 0.25 and 10x.}$$

$$7.5x \quad \text{Combine like terms.}$$

The algebraic expression that represents the price of the tennis balls is $7.5x$.

Students might have trouble remembering to convert the percentage to a decimal. Students might not have simplified.

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3. Write an algebraic expression to represent the total cost of the tennis balls with the shipping cost and the discount. Simplify the expression.

The shipping cost was \$5.99. Add this to the expression found in problem 2.

The algebraic expression that represents the total cost of the tennis balls including the shipping cost and the discount is $7.5x + 5.99$.

Students might try to apply the discount to the shipping cost, but the discount does not apply to shipping.

Encourage students to read the problem scenario carefully before and while writing their expressions.

Connection to the Lesson

- Students will extend writing expressions to writing equations.
- The process of translating an expression is the same for translating an equation.
- The warm-up is scaffolded to help students think about breaking down the context into smaller pieces, providing an example for how to think about doing this with an equation context.
- Students will be asked to take a scenario like this a step further and solve for the unknown given a total cost.