

Packet 1: Variables and Balance

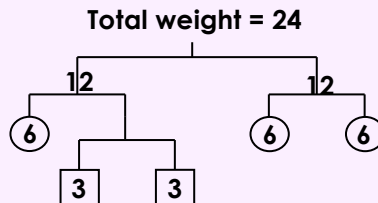
Dear Parents/Guardians,

Expressions and Equations: Packet 1 introduces students to expressions and equations using meaningful contexts. Lesson 1 introduces solving equations as balancing mobiles and scales. In Lesson 2, students use a pizza shop menu to write and evaluate expressions and solve equations for missing menu items. In Lesson 3, students use sense-making strategies to solve equations.

Balance Problems

Students determine the value of shapes to balance mobiles and scales.

In the mobile to the right, each side of the mobile must have the same weight to balance. Each side is 12.



Same shapes have the same weight.

The two circles must be 6 each to have a total weight of 12.

The circle is 6. The squares together must also be 6 so that the left side of the mobile weighs 12. Same shapes have the same weight, so each square must be 3.

$$\text{Circles} = 6$$

$$\text{Squares} = 3$$

Variables, Expressions, and Equations

Students use a menu to think about the items as variables and write orders as expressions. They will evaluate expressions by finding the total order price and solve equations to determine missing items.

MAMA'S PIZZA MENU	
Pizza	Drinks
Cheese slice \$1.00	Small drink \$0.75
Pepperoni slice \$1.50	Medium drink \$1.25
	Large drink \$2.00

Write an expression for ordering two cheese slices and a medium drink. Find the cost.

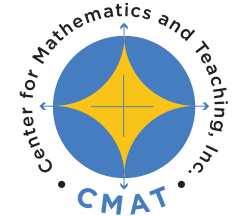
$$2c + m$$

$$2(1.00) + 1.25 = 2.00 + 1.25 = \$3.25$$

Solving Equations: Substitution

Students will use sense-making strategies to solve equations and check their solutions to make true statements.

Substitution	Cover-Up Method
<p>Students think about what value is needed to make the equation <i>true</i>.</p> $x + 5 = 12$ <p>Think, "What must I add to 5 to make 12?"</p> <p>Since $7 + 5 = 12$, the value of x is 7.</p> $x = 7$	<p>Students will 'cover up' the variable expression, determining what the value of the unknown is to make the equation <i>true</i>.</p> $2(x - 1) = 6$ <p>Cover up the unknown. $2(\square) = 6$</p> <p>Think, "2 times what number gives me 6?" (3)</p> <p>Cover up the x.</p> $\square - 1 = 3$ <p>Think, "What minus 1 is 3?" $x = 4$</p>



EXPRESSIONS AND EQUATIONS PACKET 1

By the end of the packet, your student should know...

- An equation asserts that two expressions are equal
Lessons 1.1, 1.2, and 1.3
- How to write and evaluate algebraic expressions
Lesson 1.2
- Beginning strategies for writing and solving equations
Lessons 1.1, 1.2, and 1.3

Additional Resources

For definitions and additional notes please refer to section 1.5.