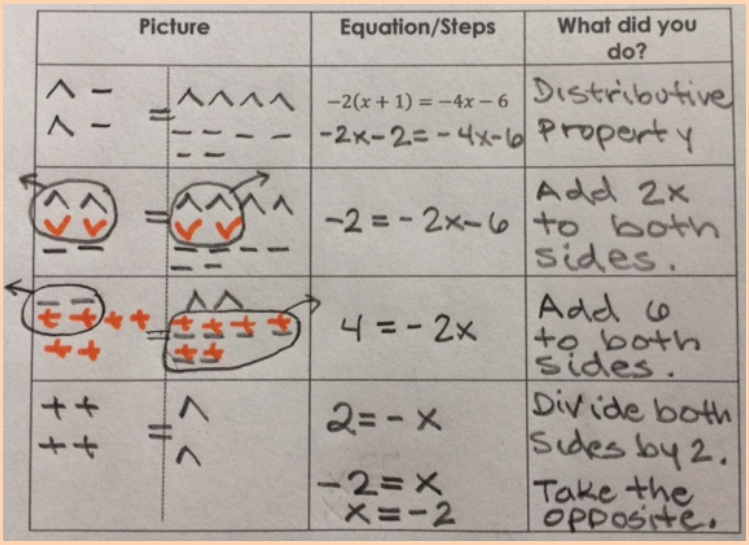
Packet 6: Solving Equations

Dear Parents/Guardians,

In Packet 6, students extend the cups/counter model to sketching a pictorial representation of the moves they would make when solving multi step equations. They record the steps algebraically and explain in words the moves they make. In Lessons 1 and 2, students only work integer coefficients. Students use their understanding from these lessons to work with rational coefficients in Lesson 3, only solving the multi-step equations algebraically.

Solving Equations with Integer Coefficients

Students will continue to use the cups/counter model from Packet 5 to solve equations. They will draw their models, representing a "-x" with the symbol ^.



Justifying Steps in Equation Solving

Students will use properties of arithmetic and properties of equality to justify each step when solving equations. (For a list of the properties, please see Student Packet 6, page 8.)

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

How to solve equations with integer coefficients by using a model, drawing a picture and solving symbolically
Lessons 6.1 and 6.2

How to recognize when a linear equation has no, one, or infinitely many solutions
Lessons 6.1 and 6.2

How to justify the steps in equation solving
Lessons 6.2 and 6.3

How to solve equations with rational coefficients and justify the steps Lesson 6.3

Additional Resources

Resource Guide (RG)
Part 1, Pages 38-43

Equation/ Algebraic Steps	State what was done (Justify)
-2(x + 3) = 4x	given equation
-2x – 6 = 4x -2	distributive property (on the left side of the equation)
-2x – 6 = 4x – 2 +6 +6	addition property of equality (added 6 to both sides of the equation)
-2x = 4x + 4 –4x –4x	addition property of equality (added a -4x to or subtracted $4x$ from both sides of the equation)
$\frac{-6x}{-6} = \frac{4}{-6}$	multiplication property of equality (multiplied both sides of the equation by $-\frac{1}{6}$ or divided both sides of the equation by -6)
$x = -\frac{4}{6} = -\frac{2}{3}$	identity property of multiplication ($-\frac{6}{6}$ x = 1x = x) simplified