The Distributive Property For Numerical and Variable Ex

Summary

Apply the distributive property in simplifying algebraic expressions

Main Core Tie

Mathematics Grade 6

Strand: EXPRESSIONS AND EQUATIONS (6.EE) Standard 6.EE.3

Additional Core Ties

Mathematics Grade 6

Strand: THE NUMBER SYSTEM (6.NS) Standard 6.NS.4

Materials

Journal page: " Distributive Property Examples"
Algeblocks (units and x's)
" Distributive Property With Algeblocks"

Background for Teachers

Enduring Understanding (Big Ideas):
Properties can be used to simplify mathematical expressions
Essential Questions:
How can I use the distributive property to multiply factors with two or more digits?
How can the distributive property be modeled using manipulatives?
Skill Focus:
Identify and use the distributive property
Vocabulary Focus:
distributive property, factors, terms
Ways to Gain/Maintain Attention (Primacy):
comparing, seeing patterns, manipulatives, story, sketching

Instructional Procedures

Starter: For each problem tell which way is easiest for you to do mentally. Explain why the one you chose was easier for you than the other.

1. Which is easiest to do mentally for you?
   2 • 50 + 2 • 9 OR 2 • 59
   3 • 436 OR 3 • 400 + 3 • 30 + 3 • 6 1 8
   x 9_ OR 9 x 10 + 9 x 8
   Use you calculator to do both problems for each above. Are the two expressions equivalent in each? What is the product?

Lesson Segment 1: How can I use the distributive property to multiply factors with one, two or more digits?
Connect the problems in the Starter to the distributive property by asking them if 50 + 9 is the same as 59, and if 400 + 30 + 6 is the same as 436, etc. Multiplying each of the place value parts of a number individually then adding the products together gives you the same answer as multiplying the entire number. The algorithm for multiplication is an example of how you have used the distributive property in your life.
Use the journal page "Distributive Property Examples" to guide class and cooperative discussion in

this manner:

- Look at one example and discuss the example making sure you USE THE VOCABULARY words in the last column.
- Have students work in pairs to try to place the words correctly in the blanks
- Have each pair share with another to see if they agree. Correct with whole class to make sure all words have been placed correctly in the blanks.
- Ask each pair to then make up an example and write it on their papers.
- Have each person share with another from another pair to explain why their example shows the use of the distributive property. If the partner doesn't agree, they can work together to make corrections.

Lesson Segment 2: How can the distributive property be modeled using manipulatives?
Model and represent: Give each team a package of Algeblocks. Have them take out several green squares and several yellow bars. On the back of the journal have students sketch, and represent the models from "The Real Cookie Monster" as you go over the story with them. Ask one person to be the model builder, while a partner coaches. Both sketch the models and write the variable expression as you go through the story. Work with the students to represent each piece. The green represents exactly one cookie. The yellow bar is *X* and represents an undetermined number of cookies.
Using the attached worksheet, "Distributive Property With Algeblocks", as a guide, help students understand and apply the distributive property. Work together to complete # 1-9. Have students take turns modeling as team members sketch and represent the questions.
Lesson Segment 3: Practice
Assign students to complete # 10-16 of the "Distributive Property With Algeblocks" worksheet. Go over any additional practice you select from a text book.

Assessment Plan

Performance tasks, observing

Bibliography

This lesson plan was created by Linda Bolin.

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