

Rational Explorations

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Discussion:

Q: Why is any negative number less than any positive numbers?

A: Negative numbers mean you owe it, while positive numbers mean you have it. Having money is more than owing money.

great analogy!

Example: Sally has \$7.00. Janet owes \$3.00. Sally has more than Janet because Janet owes money. In other words:



Discussion Question:

Our Problems:

$$3(7 \times 3) + (8 + 4)$$

What I know -

- The **Commutative law** says that you can rearrange numbers and still get the same sum as if you were not to rearrange the numbers.
- The **Associative law** says that you can move the parentheses and still get the same answer, as if you were not to move the parentheses.
- You use **PEMDAS** (Parentheses, Exponents, Multiplication or Division, Addition or Subtraction) to figure out which operation to do first.
- sum = answer

Working Out The Problem:

Original way:

$$3(7 \times 3) + (8 + 4)$$

> According to PEMDAS, we first do the parentheses.

$$3 \times (21) + (12)$$

> Then we do the multiplication.

$$63 + (12)$$

> Then we do the addition.

$$75$$

↑
sum

Associative Property:

$$3(7 \times 3) + (8 + 4)$$

> According to the Associative Property, we can change the grouping of the numbers.

$$(3 \times 7) + 3 + (8 + 4)$$

Then we do the parentheses first.

$$(21) \times 3 + (12)$$

Step 1: $(21) \times 3 + (12)$

Step 1: I would do multiplication first. Then I would do addition.

$63 + (12)$

75

Step 2: I would do addition first. Then I would do multiplication. Finally, I would do subtraction.

Commutative Property:

Step 1: I would do multiplication first. Then I would do addition. Finally, I would do subtraction.

$3(7 \times 8) + (8 + 4)$

$3(3 \times 1) + (4 + 8)$

$3(30) + (12)$

$65 + (12)$

75

Step 2: I would do addition first. Then I would do multiplication. Finally, I would do subtraction.

Step 3: I would do addition first. Then I would do subtraction. Finally, I would do multiplication.

Overall:

We can learn from working out the problem in 3 different ways that all these ways work. It's just that they work in different orders and processes.