Multiply!

Let's get more practice multiplying signed numbers.

15.1 Which Three Go Together: Expressions

Which three go together? Why do they go together?

A

$7.9x$

B

$7.9 + x$

C

$7.9 \cdot (-10)$

D

-79

15.2 Rational Numbers Multiplication Grid

1. Complete the *shaded* boxes in the multiplication square.

5						0	5	10	15	20	
4						0	4	8	12	16	
3						0	3	6	9	12	
2					-2	0	2	4	6	8	
1						0	1	2	3	4	
0						0	0	0	0	0	
-1											
-2											
-3											
-4											
-5											
	-5	-4	-3	-2	-1	0	1	2	3	4	5

2. Look at the patterns along the rows and columns. Continue those patterns into the unshaded boxes.
3. Complete the whole table.
4. What does this tell you about multiplication with negative numbers?

15.3 Card Sort: Matching Expressions

Your teacher will give you a set of cards. Each card contains an expression.

Sort the expressions into groups based on their values. There will be 3 cards in each group. Be prepared to explain how you know where each expression belongs.

15.4 Row Game: Multiplying Rational Numbers

Evaluate the expressions in one of the columns. Your partner will work on the other column.

Discuss your thinking with your partner after you finish each row. Your answers in each row should be the same. If you disagree, work to reach an agreement.

column A	column B
$790 \div 10$	$(7.9) \cdot 10$
$-\frac{6}{7} \cdot 7$	$(0.1) \cdot -60$
$(2.1) \cdot -2$	$(-8.4) \cdot \frac{1}{2}$
$-\frac{4}{3} \cdot \left(-\frac{6}{5}\right)$	$-5 \cdot (-0.32)$
$(2.5) \cdot (-3.25)$	$-\frac{5}{2} \cdot \frac{13}{4}$
$-10 \cdot (3.2) \cdot (-7.3)$	$5 \cdot (-1.6) \cdot (-29.2)$

Are you ready for more?

A sequence of rational numbers is made by starting with 1, and from then on, each term is one more than the reciprocal of the previous term. Evaluate the first few expressions in the sequence. Can you find any patterns? Find the 10th term in this sequence.

$$1 \qquad 1+\frac{1}{1} \qquad 1+\frac{1}{1+1} \qquad 1+\frac{1}{1+\frac{1}{1+1}} \qquad 1+\frac{1}{1+\frac{1}{1+\frac{1}{1+1}}} \qquad \ldots$$

Lesson 15 Summary

- A positive number times a positive number always results in a positive number.

  For example, $\frac{3}{5} \cdot \frac{7}{8} = \frac{21}{40}$.

- A negative number times a negative number also always results in a positive number.

  For example, $-\frac{3}{5} \cdot -\frac{7}{8} = \frac{21}{40}$.

- A negative times a positive number or a positive number times a negative number always results in a negative number.

  For example, $\frac{3}{5} \cdot -\frac{7}{8} = -\frac{3}{5} \cdot \frac{7}{8} = -\frac{21}{40}$.

- A negative number times a negative number times a negative number also always results in a negative number.

  For example, $-3 \cdot -4 \cdot -5 = -60$.