Level 7: Integer × and ÷ Fact Families, Part 2

Warm Up with Fact Families

Complete the fact families below. The first set is given as an example.

5×4=20	20÷5=4	3×2=6	6 ÷ 3 = <u>2</u>
4×5=20	20÷4=5	2x3=6	6:2=3
2×12=24	24:2=12	9x4=36	36 ÷ 9 = 4
12×2=24	24 ÷ 12 = 2	4x9=36	36-24 = 9

Create your own fact families for × and ÷.



 \Box Check your work with a peer or teacher.

Integer Fact Families for × and ÷

The relationship between multiplication and division applies to integers as well. Complete the integer fact families below. The first set is given as an example.

Create a variety of fact families for \times and \div with integers.



 \Box Check your work with a peer or teacher.

Generalize Properties of × and ÷ with Non-Zero Integers

Math Symbols	Words	Example
(+) × (+) = +	A positive times a positive is positive.	3 × 10 = 30
(+) × (-) =	Positive times negative is negative.	
(-) × (+) =	Negative times pasitive is negative.	
(-) × (-) = +	Negative times negative is positive	
(+) ÷ (+) = ∔	Positive divided positive is positive.	
(+) ÷ (-) =	Positive divided by negative is negative.	
(-) ÷ (+) =	Negative divided by positive is negative.	
(-) ÷ (-) = +	Negative divided by negative is positive.	

Complete the table. Check prior pages if you're unsure.

In **one** sentence, summarize the entire table above so that you always remember how positives and negatives work with integers. [There is a way to do this precisely and completely in **one** sentence of reasonable length.]

If the signs are the same, the result is positive. If the signs are different, the result is negative.

 \Box Check your work with a peer or teacher.

Generalize Properties of × and ÷ Involving Zero

Math Symbols	Words	Example
$(+) \times 0 = 0$	A positive times zero is zero.	5 × 0 = 0
0 × (+) = ()	Zero times paritive is zero.	
(-) × 0 = ()	Negative timeszero is zero.	
0 × (-) = ()	Zero times negative is zero.	
0 ÷ (+) = ()	Zero divided by posilive is zero.	
$(+) \div 0 = untefin$	ed Positive divided by zero is undefined	
$(-) \div 0 = undefined$	red Negative divided by zero	
0 ÷ (-) = ()	Zero divided by negative is zero.	

Complete the table. Check prior pages if you're unsure.

□ Check your work with a peer or teacher. Do not move on

until this is done!

Explain as clearly as you can why mathematicians concluded that 12÷0 is undefined but 0÷12 is just zero. Try first on your own, then feel free to discuss with peers, look online or in other books, etc. Use examples and/or stories and/or diagrams etc.

In as few words as possible, state the key properties of multiplication and division of integers involving zero.

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