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
4×5=20	20÷4=5

3×2=6	6 ÷ 3 = ___

	24 ÷ 12 = 2

	36 ÷ 9 = 4

Create your own fact families for × and ÷.

☐ 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.

5×(-4) = -20	(-20)÷5 = -4
(-4)×5 = -20	(-20)÷(-4) = 5

3×(-2) = -6	(-6)÷3 =

	(-60)÷(-10)=6

10×(-7) = -70	

-1×(-3) = 3	

	12÷(-2)=-6

Create a variety of fact families for × and ÷ with integers.

☐ Check your work with a peer or teacher.

Generalize Properties of × and ÷ with Non-Zero Integers

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

Math Symbols	**Words**	**Example**
(+) × (+) = **+**	A positive times a positive is positive.	3 × 10 = 30
(+) × (-) =		
(-) × (+) =		
(-) × (-) =		
(+) ÷ (+) =		
(+) ÷ (-) =		
(-) ÷ (+) =		
(-) ÷ (-) =		

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.]

☐ Check your work with a peer or teacher.

Generalize Properties of × and ÷ Involving Zero

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

Math Symbols	**Words**	**Example**
(+) × 0 = **0**	A positive times zero is zero.	5 × 0 = 0
0 × (+) =		
(-) × 0 =		
0 × (-) =		
0 ÷ (+) =		
(+) ÷ 0 =		
(-) ÷ 0 =		
0 ÷ (-) =		

☐ Check your work with a peer or teacher. Do not move on until this is done!

Which row in the table was hardest for you?

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.
