



Lesson 4: The Relationship of Division and Subtraction

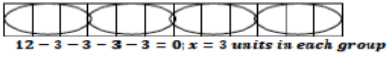
Student Outcomes

- Students build and clarify the relationship of division and subtraction by determining that $12 \div x = 4$ means $12 - x - x - x - x = 0$.

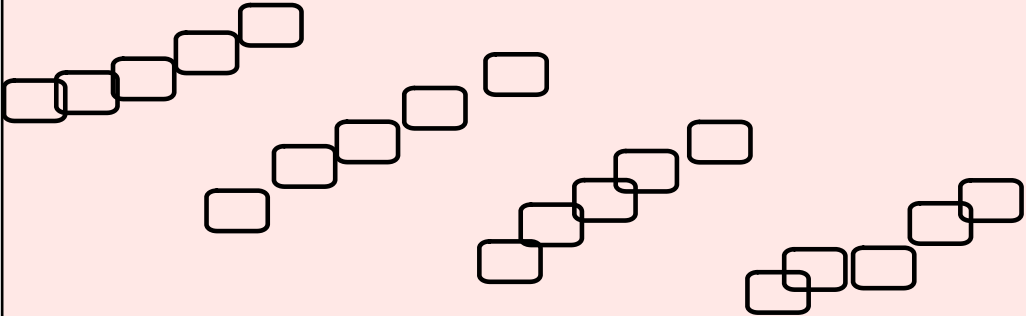
Classwork

Exercise 1

Build subtraction expressions using the indicated equations. The first example has been completed for you.

| Division Equation | Divisor Indicates the Size of the Unit | Tape Diagram | What is x, y, z ? |
|-------------------|--|--|---------------------|
| $12 \div x = 4$ | $12 - x - x - x - x = 0$ |  | $x = 3$ |
| $18 \div x = 3$ | $18 - x - x - x = 0$ | | $x = 6$ |
| $35 \div y = 5$ | $35 - y - y - y - y - y = 0$ | | $y = 7$ |
| $42 \div z = 6$ | $42 - z - z - z - z - z - z = 0$ | | $z = 7$ |

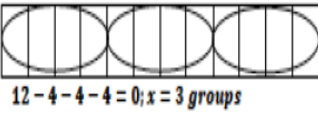
Jan 30-7:32 AM



$20 \div 4 = 5$

$20 - 4 - 4 - 4 - 4 - 4 = 0$

Feb 6-5:51 AM

| Division Equation | Divisor Indicates the Number of Units | Tape Diagram | What is x, y, z ? |
|-------------------|---------------------------------------|---|---------------------|
| $12 \div x = 4$ | $12 - 4 - 4 - 4 = 0$ |  | $x = 3$ |
| $18 \div x = 3$ | $18 - 3 - 3 - 3 - 3 = 0$ | | $x = 6$ |
| $35 \div y = 5$ | $35 - 5 - 5 - 5 - 5 - 5 = 0$ | | $y = 7$ |
| $42 \div z = 6$ | $42 - 6 - 6 - 6 - 6 - 6 - 6 = 0$ | | $z = 7$ |

Feb 6-5:49 AM

Exercise 2

Answer each question using what you have learned about the relationship of division and subtraction.

- a. If $12 \div x = 3$, how many times would x have to be subtracted from 12 in order for the answer to be zero? What is the value of x ?

$x = 4$ $12 \div 4 = 3$
 Three Times $12 - x - x - x = 0$

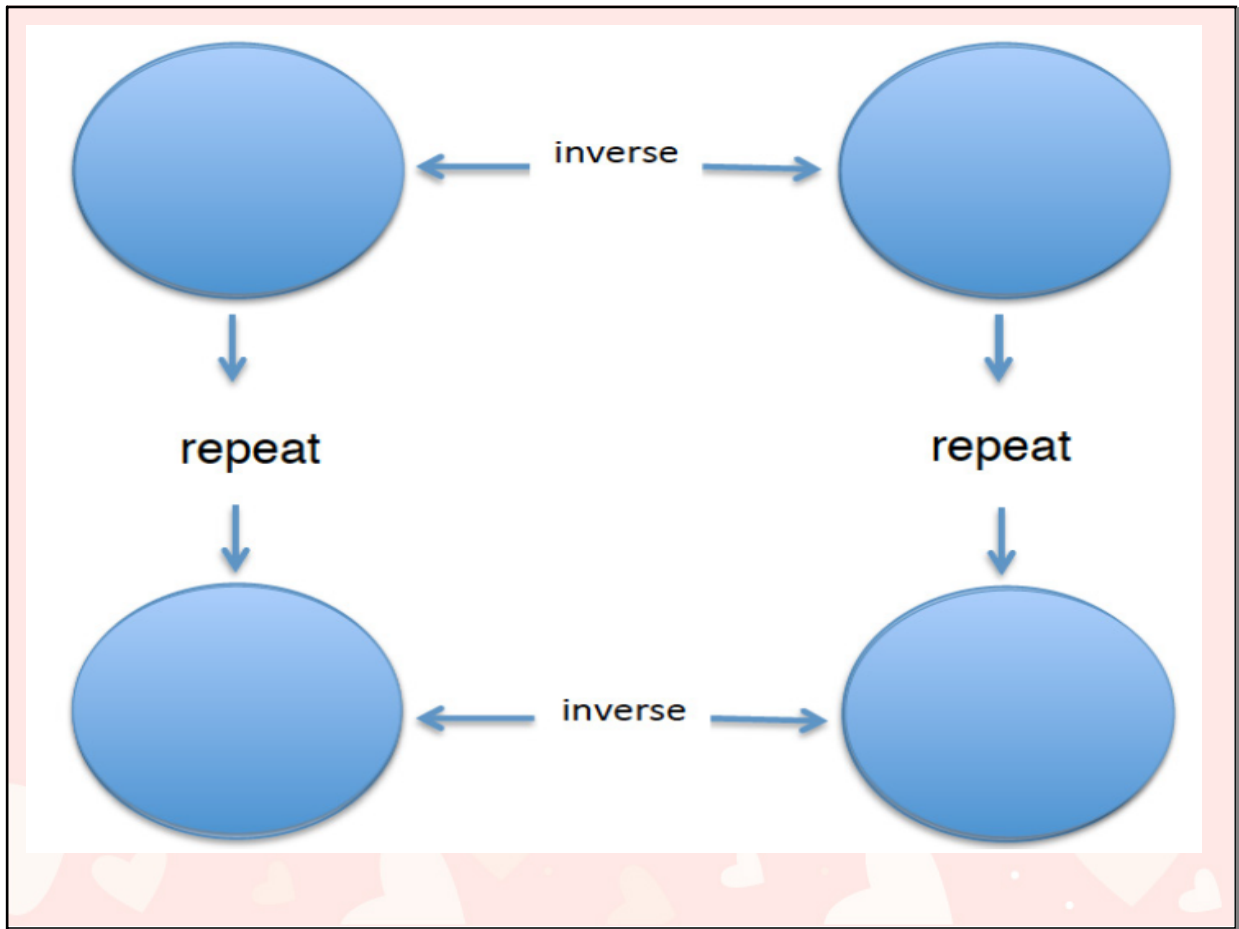
- b. $36 - f - f - f - f = 0$. Write a division sentence for this repeated subtraction sentence. What is the value of f ?

~~$36 \div 9 = 4$~~ $36 \div 4 = f$
 $f = 9$ $36 \div 4 = 9$

- c. If $24 \div b = 12$, which number is being subtracted twelve times in order for the answer to be zero?

c. If $24 \div b = 12$, which number is being subtracted twelve times in order for the answer to be zero?
 $2 \quad b = 2$

Jan 30-7:34 AM



Feb 6-5:57 AM

Problem Set

Build subtraction expressions using the indicated equations.

| | Division Equation | Divisor Indicates the Size of the Unit | Tape Diagram | What is x, y, z ? |
|----|-------------------|--|--------------|---------------------|
| 1. | $24 \div x = 4$ | | | |
| 2. | $36 \div x = 6$ | | | |
| 3. | $28 \div y = 7$ | | | |
| 4. | $30 \div y = 5$ | | | |
| 5. | $16 \div z = 4$ | | | |

Jan 30-7:36 AM

