

+ 0 Facts/ + 0 Shortcut – if zero is added to any number, or any number is added to 0, there is not change in the number

$$0 + 5 = 5$$

$$0 + 17 = 17$$

$$8 + 0 = 8$$

$$13 + 0 = 13$$

+ 1 Facts/+ 1 Shortcut – one plus any number, or any number plus 1, results in the next larger number

$$1 + 5 = 6$$

$$1 + 17 = 18$$

$$8 + 1 = 9$$

$$13 + 1 = 14$$

+ 9 Facts/+ 9 Shortcut – to find 9 plus any number, or any number plus 9, add 10 to the number and count back by 1

$$9 + 7 = ?$$

$$\text{I know } 7 + 10 = 17$$

Counting back 1 from 17 is 16

$$\text{So, } 9 + 7 = 16$$

- 0 Facts/ - 0 Shortcut – if zero is subtracted from any number, there is not change in the number

$$8 - 0 = 8$$

$$13 - 0 = 13$$

- 1 Facts/- 1 Shortcut – if one is subtracted from any number, the difference is one less than the number

$$8 - 1 = 7$$

$$13 - 1 = 12$$

- 9 Facts/ - 9 Shortcut – to find the difference of any number and 9, subtract 10 and then count up by one

$$17 - 9 = ?$$

I know $17 - 10 = 7$

Counting up 1 from 7 is 8

So, $17 - 9 = 8$

- 8 Facts/ - 8 Shortcut – to subtract 8 from any number, first subtract 10, then add 2

$$13 - 8 = ?$$

$$\text{I know } 13 - 10 = 3$$

Counting up 2 from 3 is 5

$$\text{So, } 13 - 8 = 5$$

Addition Fact – two 1-digit numbers and their sum

Addition Facts

$$7 + 3 = 10$$

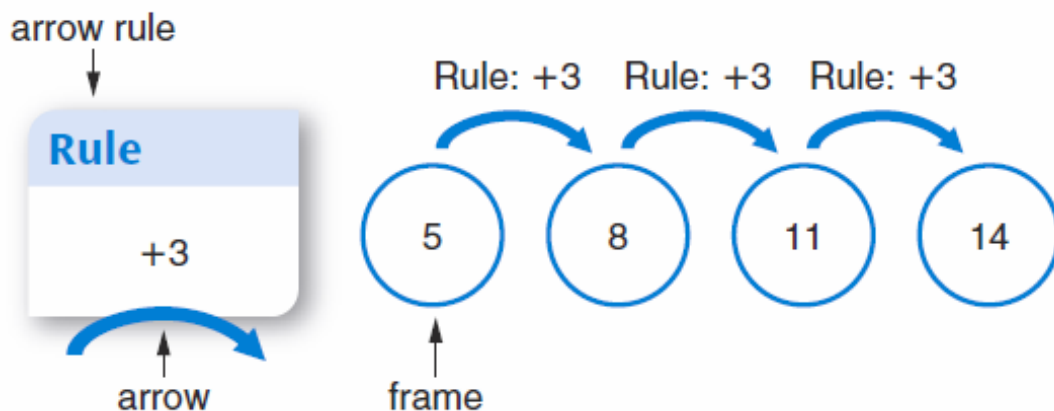
$$\begin{array}{r} 9 \\ +6 \\ \hline 15 \end{array}$$

Addition Number Story – a story problem that requires addition

Joe has 7 baseball cards. Ben gives him 5 more. How many baseball cards does Joe have now?

$$7 + 5 = 12$$

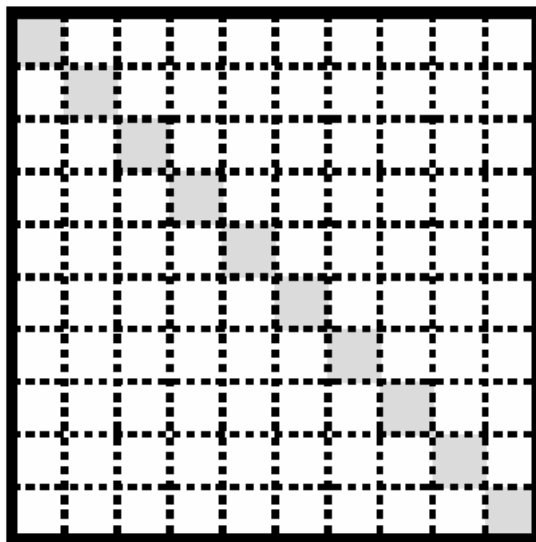
Arrow/Arrow Rule - an operation that determines the number that goes into the next frame in a *Frames and Arrows* diagram; there may be more than one arrow rule per diagram



Column – a vertical arrangement of objects or numbers in an array or table;
“back and forth”

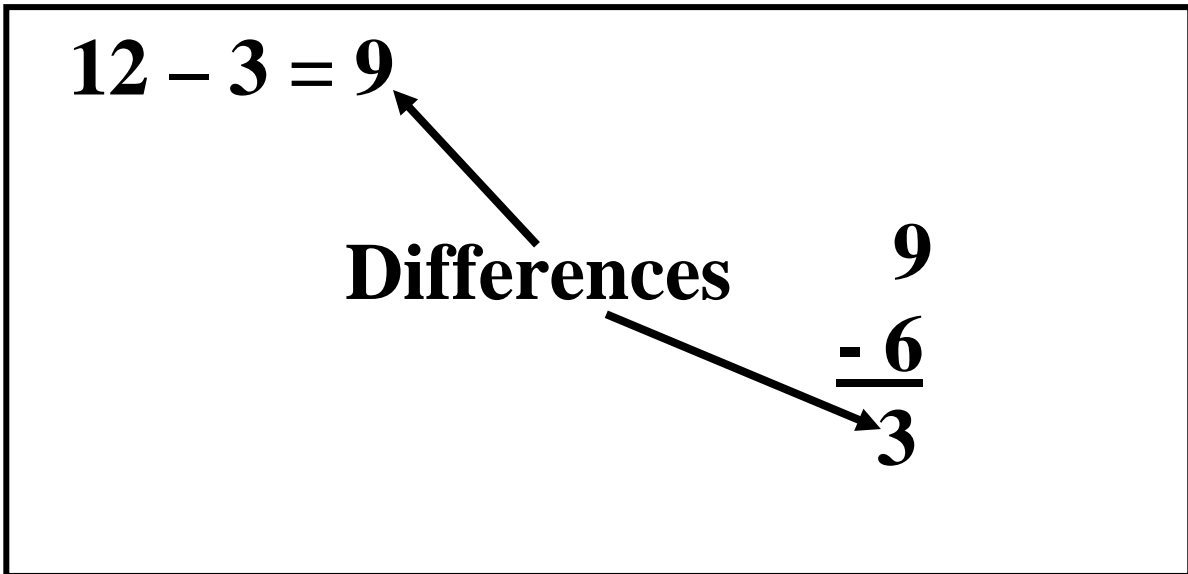


Diagonal – a line of objects or numbers from upper left to lower right, or from upper right to lower left, in an array or table



A diagonal of an array

Difference – the result of subtracting one number from another



Doubles Facts – a number plus itself and its sum

$1 + 1 = 2$	$6 + 6 = 12$
$2 + 2 = 4$	$7 + 7 = 14$
$3 + 3 = 6$	$8 + 8 = 16$
$4 + 4 = 8$	$9 + 9 = 18$
$5 + 5 = 10$	$10 + 10 = 20$

Doubles Fact + 1 – if you know the doubles facts for a number, you can figure out the doubles + 1 by doubling and adding 1

$$7 + 8 = ?$$

I know that $7 + 7 = 14$

So $7 + 8$ is one more than 14

$$\text{So } 7 + 8 = 15$$

Doubles + 2 Facts - if you know the doubles facts for a number, you can figure out the doubles + 2 by doubling and adding 2

$$6 + 8 = ?$$

I know that $6 + 6 = 12$

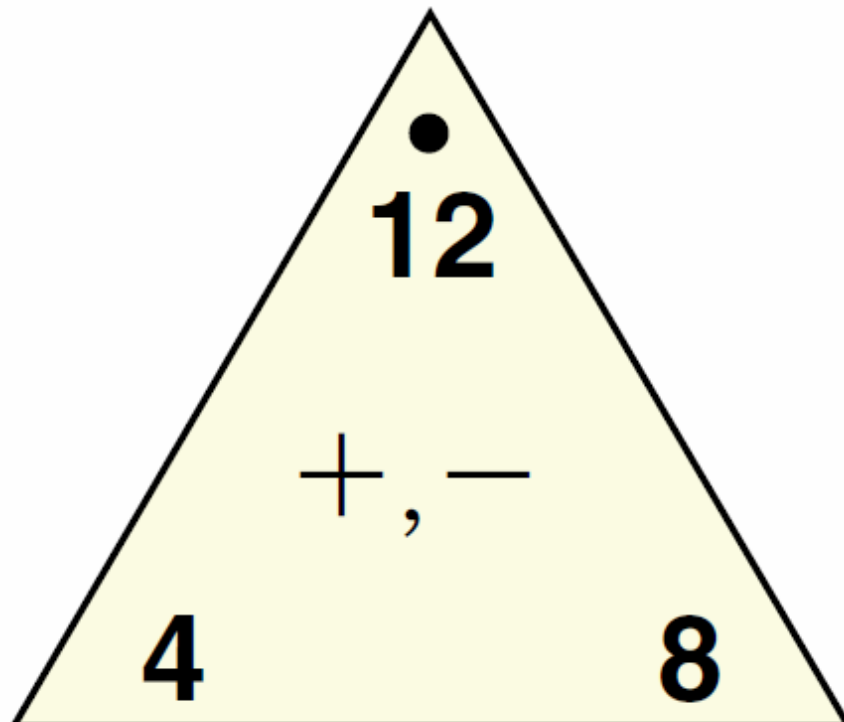
So $6 + 8$ is two more than 12

$$\text{So } 6 + 8 = 14$$

Fact Family— a set of related arithmetic facts linking two inverse operations

Fact Family	
$5 + 7 = 12$	$12 - 7 = 5$
$7 + 5 = 12$	$12 - 5 = 7$

Fact Power — the ability to recall basic arithmetic facts automatically

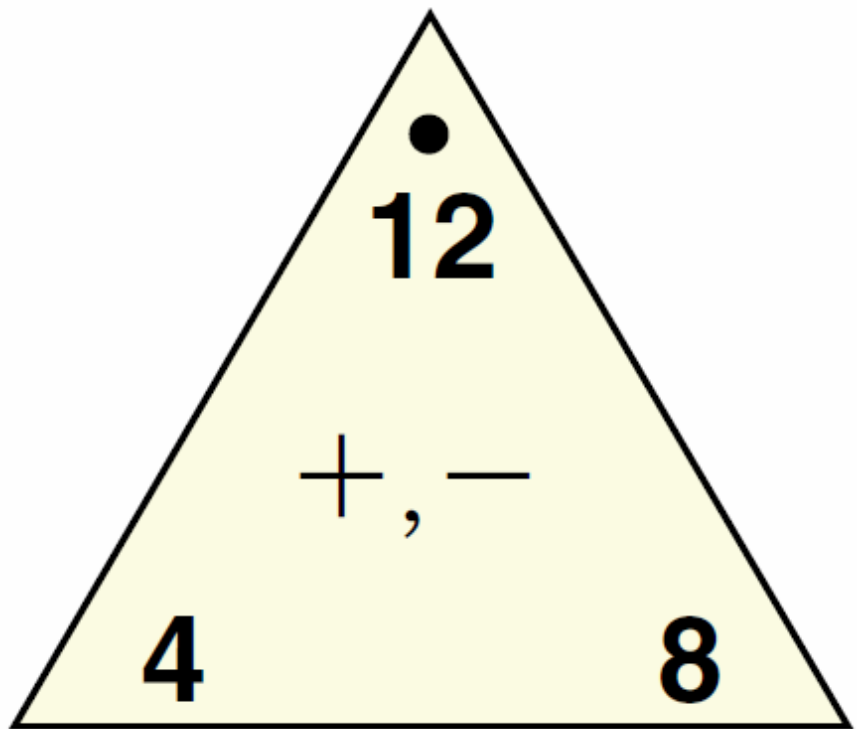


Facts Table – a resource used to help add or subtract any two numbers

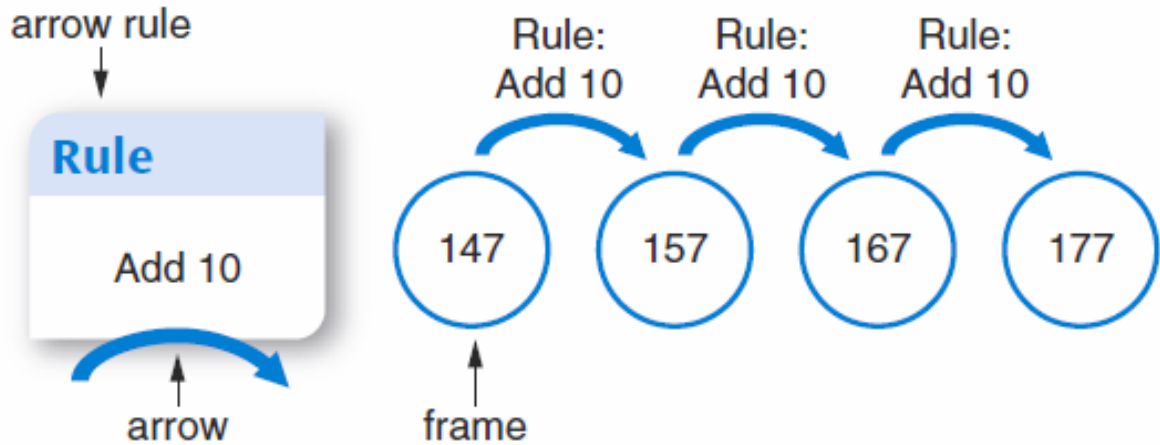
LESSON 2.3 Addition/Subtraction Facts Table

+, -	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16

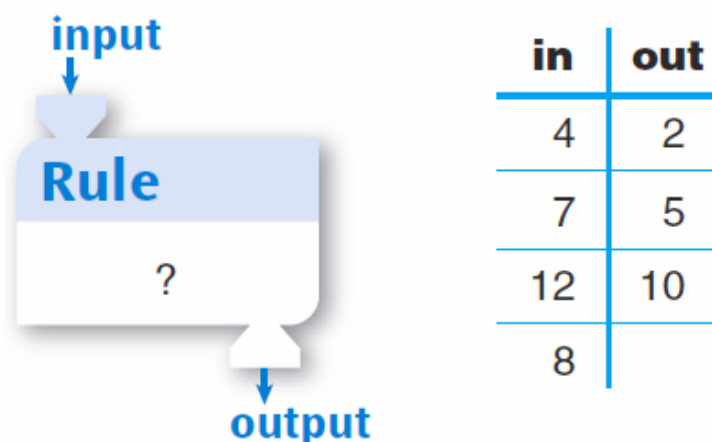
Fact Triangle – a triangular flash card labeled with the numbers of a fact family that students can use to practice addition and subtraction



Frames/Frames and Arrows Diagrams - diagrams consisting of frames connected by arrows used to represent number sequences; each frame contains a number, and each arrow represents a rule that determines which number goes in the next frame; there may be more than one rule, represented by different-color arrows



Function Machine/What's My Rule? – a problem in which two of the three parts of a function (input, output, and rule) are known, and the third is to be found out



A "What's My Rule?" problem

Heavier – weighing more; having more weight



The cat is heavier than the mouse.

Lighter – weighing less; having less weight



The mouse is lighter than the cat.

In balance/Balanced – two sides of a pan balance are even or balanced; when this happens, the objects in the two pans are said to have the same weight



Label – words that go with numbers to describe the units which the numbers represent

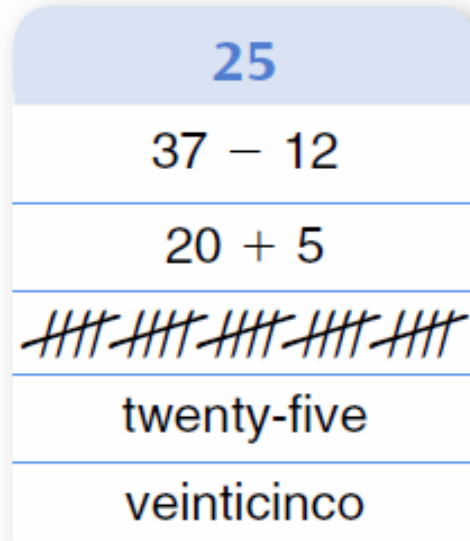
Labels

16 apples

12 cookies

3 horses

Name-Collection Box – a diagram that is used for collecting equivalent names for a number



Number Model – a number sentence, expression, or other representation that models a number story or situation

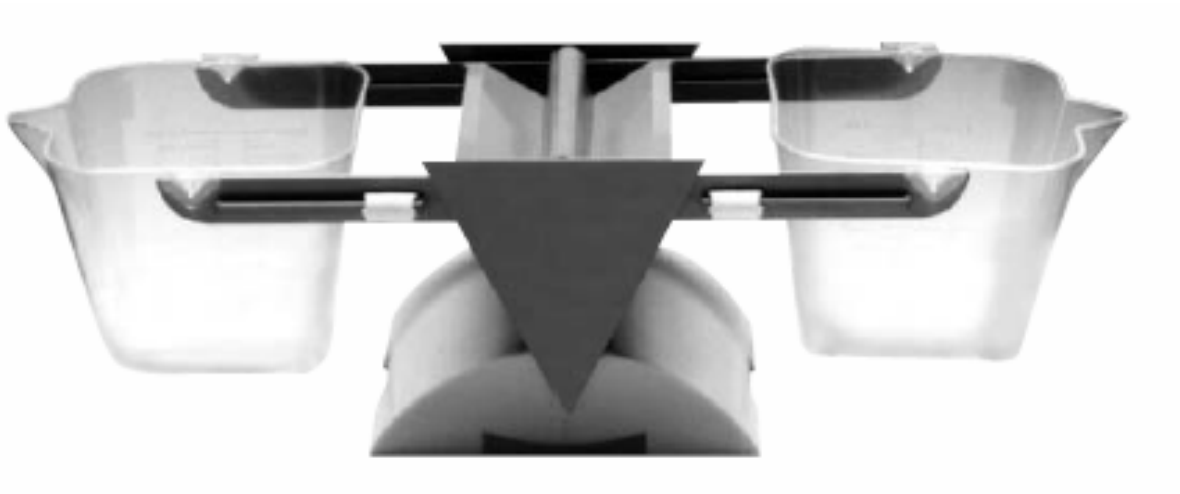
Sally had \$5.00 and then earned \$3.00 more. How much money does Sally have now?

Number Model = \$5.00 + \$3.00 = \$8.00

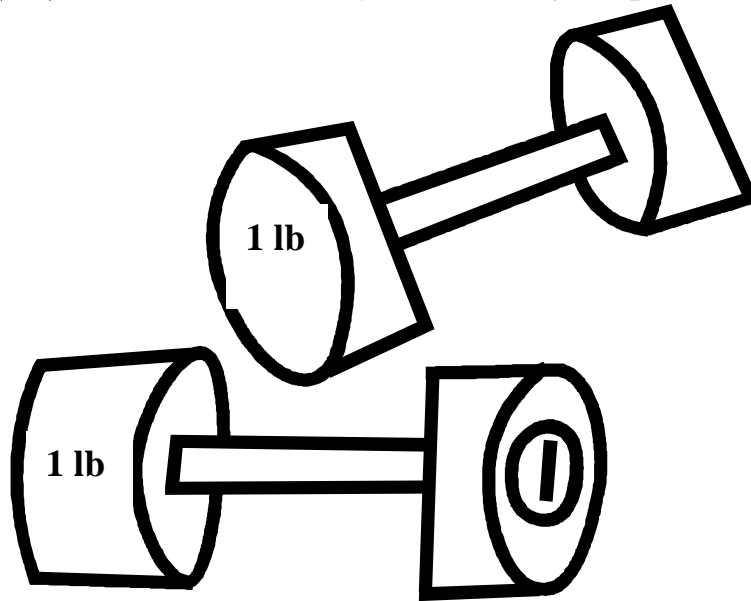
Ounce (oz) – a U.S. customary unit of weight equal to $\frac{1}{16}$ of a pound



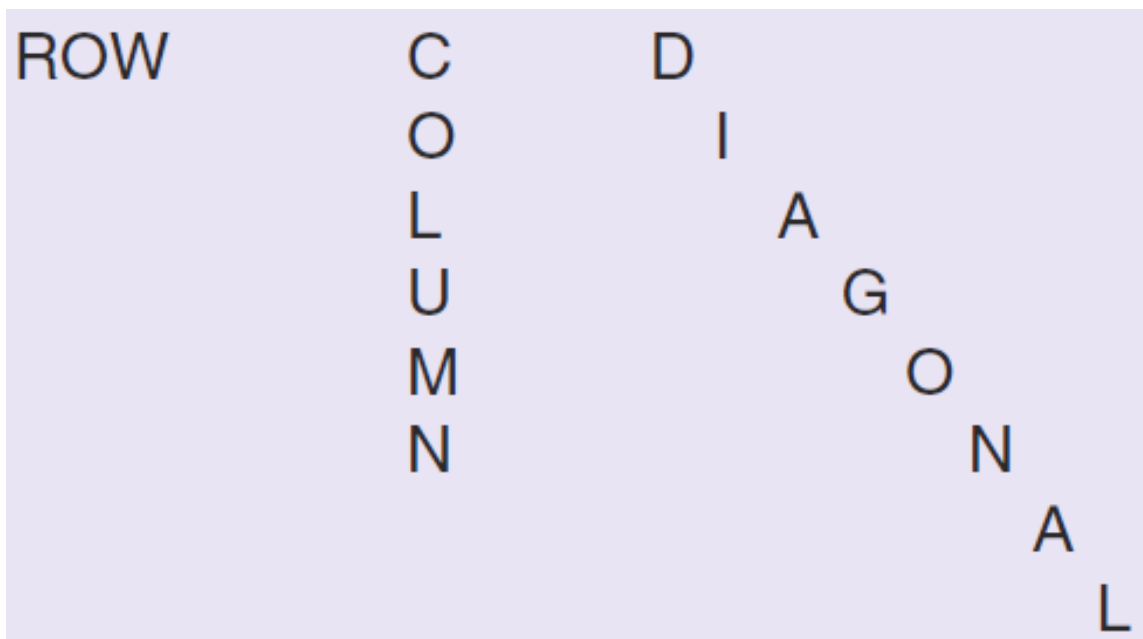
Pan Balance – a device used to weight objects or compare their weights



Pound (lb) – a U.S. customary unit of weight equal to 16 ounces



Row – a horizontal arrangement of objects or numbers in a table or an array



Spring Scale – a device used to weigh objects that are less than one pound; numbers on the spring scale represent **ounces**, not pounds

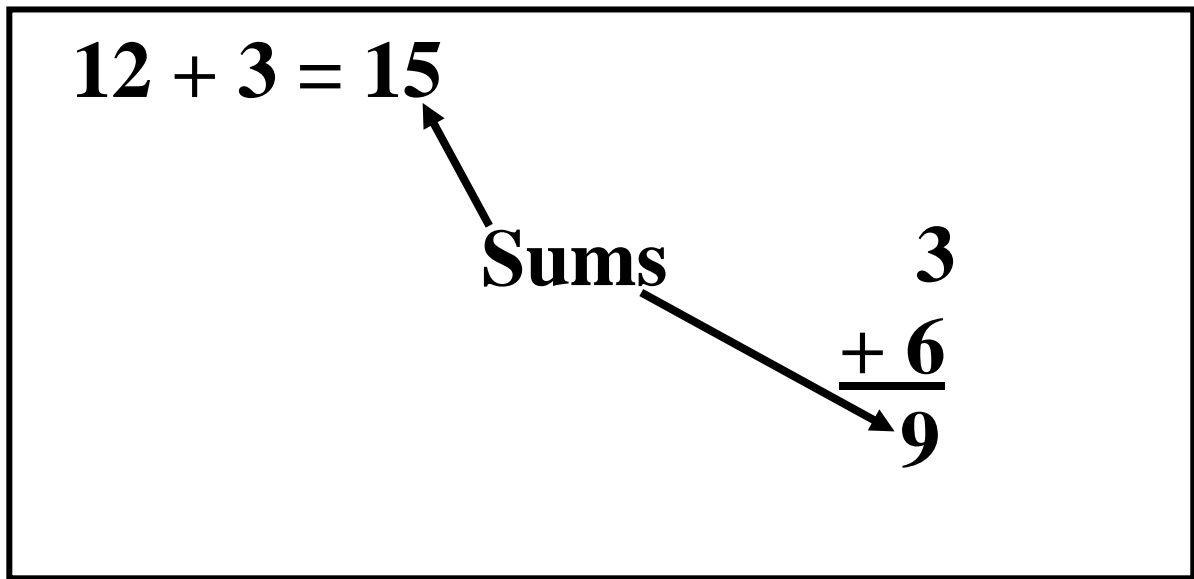


Subtraction Number Story – a story problem that requires subtraction

Joe has 15 baseball cards. He gives Ben 7. How many baseball cards does Joe have left?

$$15 - 7 = 8$$

Sum – the result of adding two or more numbers



Turn-around Rule/Facts – a rule for solving addition and multiplication problems based on the Commutative Property

If you know $6 + 8 = 14$, then you know $8 + 6 = 14$

If you know $6 * 8 = 48$, then you know $8 * 6 = 48$

Unit Box – a label used to put a number in context; students often keep track of units in unit boxes

