

Look Back

Izzy has 5 apples. Caz gives her 7 more apples. How many apples does Izzy have **altogether**? **add**

$$5 + 7 = 12$$

the sum

addition sentence



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Caz has 7 apples. Izzy gives 5 more apples to Caz. How many apples does Caz have **altogether**? **add**

$$7 + 5 = 12$$

the sum

addition sentence

Thinking Cap



Eddy wonders if $5 + 7$ is the same as $7 + 5$.

What can you say about the order of the numbers in the addition sentences? What makes you say so?

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Is $5+7$ the same as $7+5$? **Yes**

What can you say about the order of the numbers in the addition sentences?

The order of the numbers does not change the sum of the numbers.

What makes you say so?

$$7 + 5 = 5 + 7 = 12$$

Let's Learn

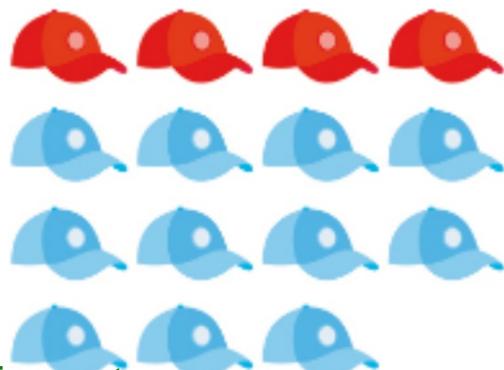
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a Casper has 4 red and 11 blue caps.



How many caps does he have altogether?

Way 1

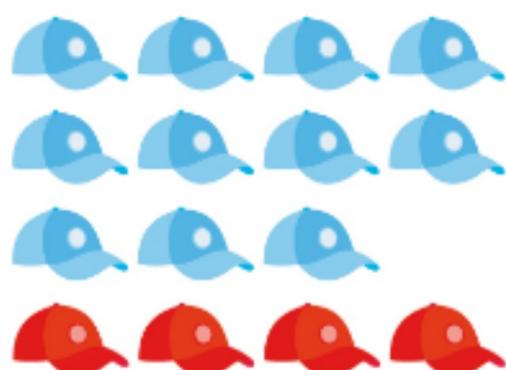


addition sentence

$$4 + 11 = 15$$

the sum

Way 2



addition sentence

$$11 + 4 = 15$$

the sum

You can change the order of numbers in an addition sentence.
It does not change the sum.

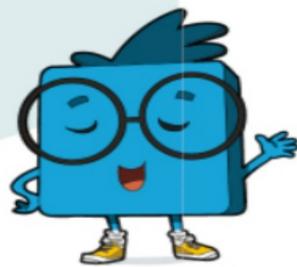
This is called the commutative rule of addition.

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The commutative rule of addition works for three numbers, too.

$$2 + 3 + 8 = 2 + 8 + 3 = 13$$

10 10



Example:

$$3 + 7 + 8 = 3 + 8 + 7 = 18$$

10 10

The commutative rule of addition states that the order of numbers in an addition sentence can be changed as the sum remains the same.

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Do you think the
commutative rule works
for subtraction?
Why do you think so?

Do you think the commutative rule works for subtraction? **No.**

Why do you think so?

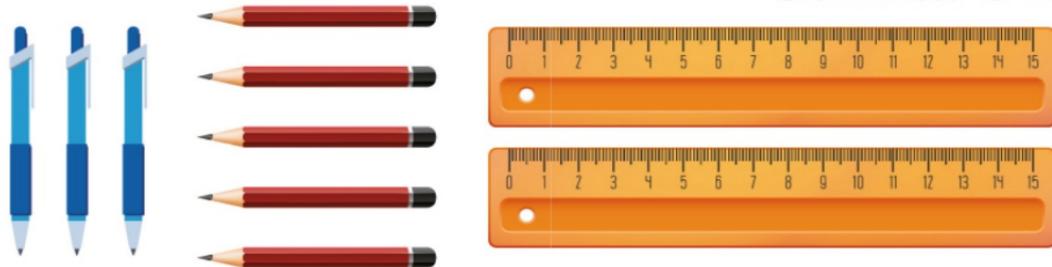
An examples where the rule does not work for subtraction.

For example, $10 - 3 = 7$ but

$3 - 10$ is not equal to 7.

b There are 3 pens, 5 pencils and 2 rulers in a pencil box.

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How many items are there in the pencil box?

The number of pens is added to the number of pencils first then the sum is added to the number of rulers.

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Way 1

	$+$		$+$	
$\text{pens} \quad \text{pencils} \quad \text{rulers}$ $\underbrace{3 + 5}_{\downarrow} + 2$				$=$
	$+$		$=$	$8 + 2$
the sum				$=$
				10

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Way 2

Diagram illustrating three ways to add three sets of objects:

- Way 1:** pens + pencils + rulers = 10
- Way 2:** pens + pencils + 2 rulers = 7 + 2 = 9
- Way 3:** 3 pens + 5 pencils + 2 rulers = 3 + 5 + 2 = 10

the sum

the number of pencils is added to the number of rulers first then the number of pens is added to the sum.

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$$3 + 5 + 2 = 5 + 2 + 3 = 10$$

There are 10 items in the pencil box.

You can change the grouping of numbers in an addition sentence.
It does not change the sum.

This is called the **associative rule** of addition.

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Do you think you can use the associative rule in subtraction like $6 - 4 - 1$? Explain why.



No.

An example where the rule does not work for subtraction :

$$\underline{6 - 3} - 1 = \\ \underline{3} - 1 = 2$$

but $6 - \underline{3 - 1} = \\ 6 - 2 = 4$

$$6 - 4 - 1 = \\ \underline{6 - 4} \\ 2 - 1 = 1$$

$$6 - 4 - 1 = \\ \underline{6 - 4} \\ 6 - 3 = 3$$

the answer (difference) is not the same



Let's Practise

I Match.

$20 + 10$

$5 + 34$

$54 + 85$

$20 + 16 + 18$

$18 + 16 + 17$

$10 + 20$

$85 + 54$

$16 + 18 + 17$

$16 + 18 + 20$

$34 + 5$



2 Fill in the blanks.

a $|5 + 47 + 25| = 47 + \underline{40} = \underline{87}$

b $|10 + 9 + 8| = \underline{100}$

c $23 + \boxed{46 + 14} = 23 + \underline{60} = \underline{83}$

d $33 + \underline{15} + 67 = \underline{115}$

$100 + 15 = 115$