6th Basic

7th Advanced

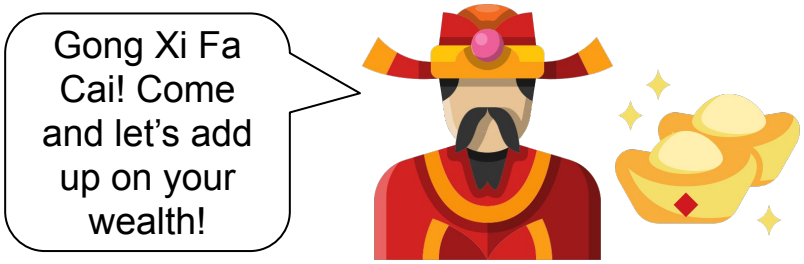
Helping With Math

USA GRADES

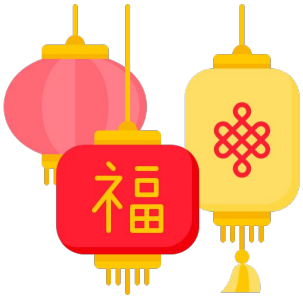
Addition Property

Suitable for students **aged 10-12**

This pack is suitable for learners aged 10 to 12 years old or 6th to 7th graders (USA). The content covers fact files and relevant basic and advanced activities involving addition property.



Chinese New Year is a 15-day festival in China and Chinese communities which begins with the new moon and ends on the full moon. This usually occurs between January 21 to February 20.



- Addition is the process of adding one number to another number.
- It has four different properties: *commutative, associative, identity and inverse properties of addition*.
- These properties show different ways of doing addition but still getting the same sum.

PROPERTIES OF ADDITION

COMMUTATIVE PROPERTY

The commutative property of addition tells us that changing the order of the addends will not change the sum.

Examples:

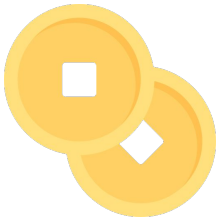
a + b = b + a
y + z = z + y

ASSOCIATIVE PROPERTY

The associative property of addition shows that when three or more numbers are added together, the grouping of these numbers will not change the sum.

Examples:

(a + b) + c = a + (b + c)
x + (y + z) = (x + y) + z



Remember that parentheses tell us what we need to do first. In this case, we need to add first the addends inside the parenthesis.

For example:

(2 + 3) + 1 = 2 + (3 + 1)
5 + 1 = 2 + 4
6 = 6

In this example, we added the addends inside the parentheses, then added its sum to the remaining addends. Regardless of the groupings made, we were still able to get the same sum.

PROPERTIES OF ADDITION

IDENTITY PROPERTY

The identity property of addition says that the sum of zero and any number is still the same number. Zero is called the **identity element** in addition.

Examples:

a + 0 = a
0 + a = a

Because of the commutative property, we can interchange the position of the addends.

INVERSE PROPERTY

The inverse property of addition tells us that for every “a”, there is an equivalent “-a”. Adding these *additive inverses* will always give us a sum of 0.

Examples:

a + (-a) = 0
b + (-b) = 0

There is also another property of addition that gives an explanation to the sum of all real numbers.

When we say real numbers, these are whole numbers such as (0, 1, 2, 3…). Numbers with exponents or with decimals are not considered as real numbers.

Closure property of addition teaches us that when two real numbers are added together, its sum will still be a real number.

Example: **a + b = c**

PRACTICE TIME!

1. **Which is an example of commutative property?**

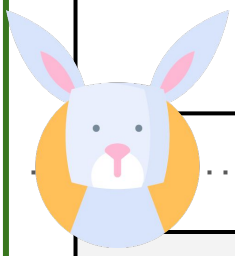
a. 2 + 2 = 2 + 1 + 1
b. 2 + 1 = 1 + 2

2. **Which is an example of associative property?**

a. (2 + 3) + 1 = 2 + (3 + 1)
b. (2 + 3) + 1 = 3 + 3

3. **Which is an example of identity property?**

a. 1 + 0 = 1
b. 1 + 1 = 2



Provide an example for Inverse Property of Addition.

Provide an example for Closure Property of Addition.

TABLE OF ACTIVITIES

Ages 10-11 (Basic)		6th Grade
1	Stop Nian	
2	Lion's Dance Steps	
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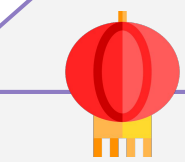
6	Annual Family Reunion	
7	Bring your Offerings	
8	Different Celebrations	
9	Legends of Sui and Nian	
10	Beware of the Beast	

STOP NIAN

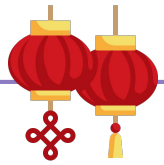
G6 Basic

It was believed that the mythical beast, Nian, causes destruction every New Year's eve. He can be stopped by putting up red lanterns and lighting some firecrackers. Complete the equations in each of the houses below.



1.) 12 + ___ = 19

___ + 12 = 19

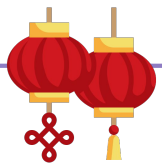


2.) 4 + (5 + 3) = ___

(4 + ___) + 3 = 12

3.) 7 + (2 + ___) = 14

(___ + 2) + 5 = 14

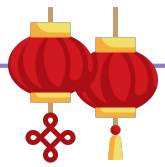


4.) 5 + ___ = 14

5 + 9 = ___

5.) 6 + ___ + 5 = 15

___ + 4 + ___ = 15



6.) ___ + 3 + 4 = 16

4 + 9 + ___ = ___

LION'S DANCE STEPS

G6 Basic

Lion or Dragon Dances are always present every Chinese New Year. Identify which direction will the dancers go by checking if the equations are correct or incorrect. If correct, shade the right arrow with the color red. If incorrect, shade the left arrow with the same color.

4.) (4 + 7) + 3 = (4 + 3) + 7

3.) 11 + (5 + 4) =
(11 + 5) + 4

2.) 21 + 13 = 11 + 23

1.) 12 + (-12) = 1

PROTECT ME FROM SUI

G6 Basic

It has been a tradition to give out red envelopes to children to keep them safe from Sui, a demon that comes out to terrify them in their sleep. Compute the equations on the envelopes to identify the receiver of each one. Write their names on the spaces provided.

A

12 + 6 + 7
6 + 7 + 12

_____

B

(10 + 4) + 9
10 + (4 + 9)

_____

C

14 + 13 + 5
5 + 14 + 13

_____

D

30 + 0
0 + 30

_____

E

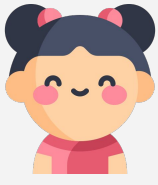
11 + (13 + 5)
(11 + 13) + 5

_____

F

27 + 0
0 + 27

_____

					
Lei $30	Chen $29	Ning $32	Kai $27	Bao $23	Yang $25

CHINESE ZODIAC

G6 Basic

12 animals represent the Chinese Zodiac, and your sign will depend on the year of your birth. 8 of the zodiacs are shown below with equivalent numbers. Show the possible equations formed based on the given properties below.

= 11

= 17

= 13

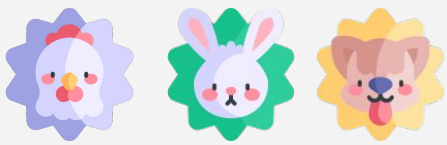
= 15

= 7

= 20

= 9

= 10

	COMMUTATIVE PROPERTY	
	ASSOCIATIVE PROPERTY	
	IDENTITY PROPERTY	
	COMMUTATIVE PROPERTY	
	INVERSE PROPERTY	

THE GOD OF WEALTH

G6 Basic

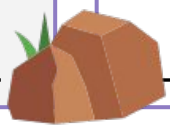
Caishen, the god of Wealth, is being celebrated on the fifth day of the New Year. He is believed to be an early alchemist as he has a tool that can turn an ordinary stone into gold. Turn these stones into gold by answering the equations below and identifying which properties of addition were used.

1.) 12 + 7 + 8 = ___

_____

2.) 23 + 0 = ___

_____



3.) 7 + (8 + 3) = ___

_____

4.) 13 + (-13) = ___

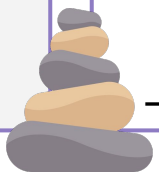
_____

5.) 8 + 9 + 2 = ___

_____

6.) (13 + 2) + 5 = ___

_____



7.) 31 + 0 = ___

_____

8.) (-12) + 12 = ___

_____

ANNUAL FAMILY REUNION

G7 Advanced

Families gather for reunions to celebrate the Chinese New Year. Ling is going to visit their ancestral house this year. Find the value of the variables below before they reach their destination.

1.) **7 + 1 + 4 = a**
b + 4 + 1 = 12

a: ___ b: ___

2.) **(a + 2) + 10 = 20**
8 + (2 + 10) = b

a: ___ b: ___

3.) **27 + (-a) = 0**

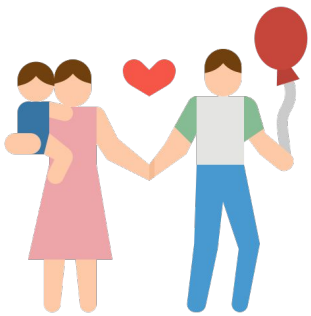
a: ___

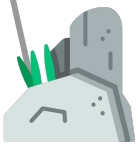
4.) **13 + a = 25**
b + 12 = 25

a: ___ b: ___

5.) **a + 0 = 11**

a: ___

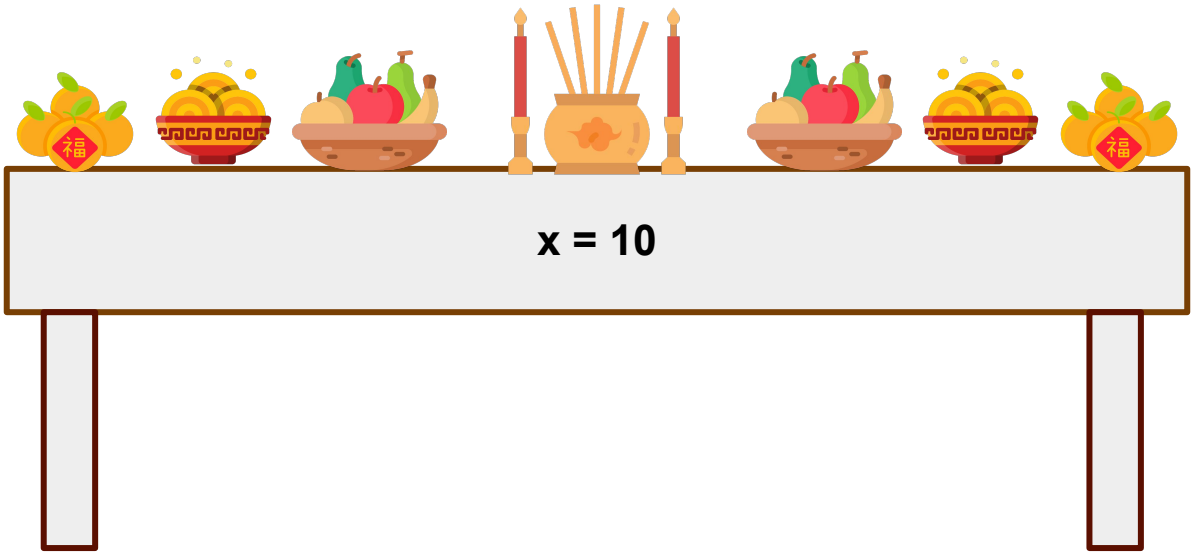




BRING YOUR OFFERINGS

G7 Advanced

Every Chinese New Year, offerings are made to the gods and goddesses. Make your final preparations for the offering table and answer the questions below. The value of x is engraved on the table.



1. If the sum is 37, what is the value of y when the other addends are x and 13?

_____

3.What is the sum of x and its additive inverse?

_____

2. Addends 5 and x are grouped together, then added to y. Their sum is 21. What is the value of y?

_____

4. X and y are grouped together and added to 15. Their sum is 34. What is the value of y?

_____

DIFFERENT CELEBRATIONS

G7 Advanced

Chinese New Year is being celebrated in many ways. Help out the people below with their celebrations by giving the appropriate numbers of sentences. Provide two possible equations for each item.

As a dragon dancer, I got paid $25 on Friday and $30 on Saturday. What is my total earnings? Write down the equation based on commutative property of addition.

1. _____

2. _____

I initially brought 13 oranges and 12 apples as offering. I added 10 apples more. How many fruits did I bring in total? Use the associative property to write the equations.

3. _____

4. _____

I received a red envelope from my son. He gave me $40. I also gave an envelope to my granddaughter with $40 inside. How much money do I have now? Write the equation using the inverse property.

5. _____

6. _____

LEGENDS OF SUI AND NIAN

G7 Advanced

Sui and Nian are known to cause fear and destruction every eve of the Chinese New Year. Traditions of giving red envelopes and using firecrackers originated from these legends. Provide the equations below for the paragraphs provided. Write down which property of addition is appropriate for the word problem.

Every Chinese New Year, it is a tradition to give out red envelopes with money, especially children, to keep them safe from Sui. You are very excited to receive envelopes again this year. Your parents gave you $20 each, and you received another $15 from your Ahia. How much money did you get in total?

Equation:	**Property:**

To drive away Nian, people use firecrackers because they believe they are afraid of loud noises. Your good neighbor bought 25 pieces of firecrackers. He was supposed to add more, but no more stocks were left. How many firecrackers are there in total?

Equation:	**Property:**

BEWARE OF THE BEAST

G7 Advanced

Chinese New Year's Eve is fast approaching. Familiarize yourself with Nian as you familiarize yourself with the properties of addition. Identify which properties of addition were used below, and complete the drawing of Nian.

龍

1. If x is grouped with y then added to z, what is the addition property used?

_____

2. If x and y are both real numbers and the sum is also a real number, which addition property best explains this?

_____

3. If x is added to its additive inverse, what property of addition is used?

_____

ANSWER GUIDE

Activity 1

1.) 7; 7 2.) 12; 5 3.) 5; 7 4.) 9; 14
5.) 4; 6; 5 (6 & 5 can be interchanged) 6.) 9; 3; 16

Activity 2

1. Left 2. Left 3. Right 4. Left

Activity 3

A. Yang B. Bao C. Ning D. Lei E. Chen F. Kai

Activity 4

1.) 20 + 13 = 33 | 13 + 20 = 33
2.) (15 + 7) + 11 = 33 | 15 + (7 + 11) = 33
3.) 9 + 0 = 9 | 0 + 9 = 9 4.) 17 + 10 = 27 |10 + 17 = 27
5.) 20 + (-20) = 0

Activity 5

1. 27; Commutative 2. 23; Identity 3. 18; Associative 4. 0; Inverse
5. 19; Commutative 6. 20; Associative 7. 31; Identity
8. 0; Inverse

ANSWER GUIDE

Activity 6

1. a = 12 b = 7 2. a = 8 b = 20 3. a = -27
4. a = 12 b = 13 5. a = 11

Activity 7

1. 14 2. 6 3. 0 4. 9

Activity 8

1. 25 + 30 = 55 2. 30 + 25 = 55
3. (13 + 12) + 10 = 35 4. 13 + (12 + 10) = 35
5. 40 + (-40) = 0 6. (-40) + 40 = 0

Activity 9

1. Equation: (20 + 20) + 15 = 55 | Property: Associative Property
(Two $20 were given first before receiving $15)
2. Equation: 25 + 0 =25 | Property: Identity Property

Activity 10

1. Associative 2. Closure 3. Inverse

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