



G3-G4
Basic

G5-G6
Advanced

Helping With Math

GRADES

Arithmetic Skill:

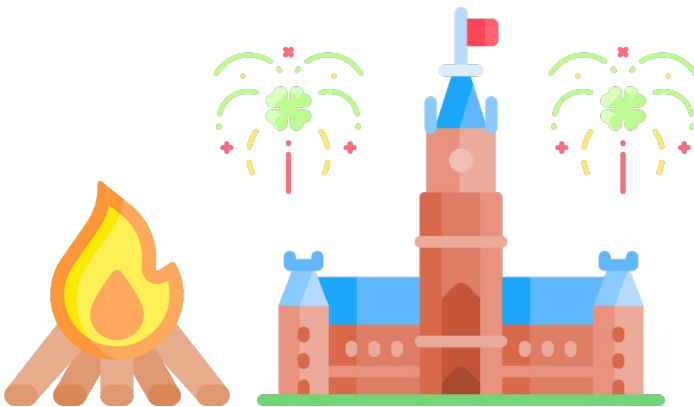
Addition & Subtraction of Fractions

Suitable for students
aged 7-11



This pack is suitable for learners aged 7 to 11 years old or 3rd to 6th graders. The content covers fact files and relevant basic and advanced activities of addition and subtraction of fraction topics that aim to develop and strengthen the learners' arithmetic skills.

Remembering Guy Fawkes every 5th of November



Guy Fawkes Night is being celebrated to look back at the failed plot of 14 men in England to blow up the Houses of Parliament on November 5. This is being celebrated as a thanksgiving by preparing bonfires and fireworks.

Arithmetic Skill



Arithmetic is considered as one of the widely used language in the world. Learning arithmetic makes one's life easy to navigate using this important skill.



CONCEPTS

What is Arithmetic?

- This is a branch of mathematics that deals with the manipulation of numbers using different operations, such as: addition, subtraction, multiplication, and division.
- This is considered as a foundation to all the advanced mathematical skills that will be learned in the future.



ARITHMETIC BASED ON LEARNERS

- ❖ In Kindergarten, children start to learn how to count from 1 to 10, mainly by using their two hands.
- ❖ When they reach 1st grade, they now recognize numbers up to 20. They already know how to count by 5s and 10s, including the basics of addition and subtraction. They can now compare numbers using “greater than”, “less than”, and “equal”.
- ❖ In 2nd grade, they learn how to use this skills in everyday life by learning how to tell the time and count money. They can now start counting up to 20 in their head, and learn basics of fractions and more complex addition and subtraction.
- ❖ Third graders learn more about fractions, decimals, multiplication and measuring weight and volume. They learn how to apply these skills in real life by following a recipe or making a change.



CONCEPTS

ARITHMETIC BASED ON LEARNERS

- ❖ Arithmetic for fourth graders focuses more on advanced multiplication, division, and fraction. Word problems introduced in this level help them with their logical skills.
 - ❖ In fifth and sixth grade, they learn more complex mathematics such as adding, subtracting and multiplying fractions, learning about areas and perimeters, different types of triangles and even prime numbers.
 - ❖ Middle schoolers learn basic algebra that focuses on finding one missing number often substituted by “x” or “y”.
 - ❖ High schoolers learn more about complex algebra, including geometry and trigonometry. This is the age range that mostly uses arithmetic in real-life.
-

What is a Fraction?

- Fractions represent a part of a whole.
- It has two parts: the numerator and denominator.
- The numerator is the upper part of a fraction. It tells the number of equal parts being taken.
- The denominator is the lower part of a fraction that tells the number of equal parts of a whole or collection.

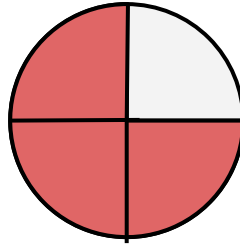


CONCEPTS

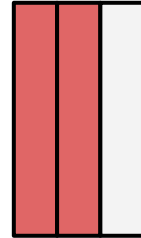
TYPES OF FRACTIONS

PROPER FRACTIONS

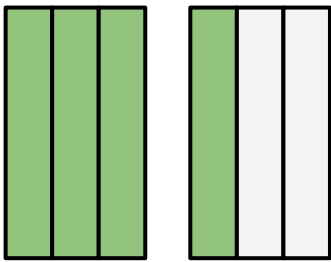
- Fractions wherein the numerators are less than the value of the denominators.



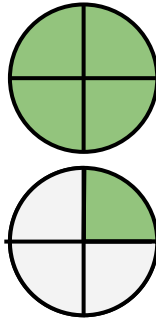
$$\frac{3}{4}$$



$$\frac{2}{3}$$



$$\frac{4}{3}$$



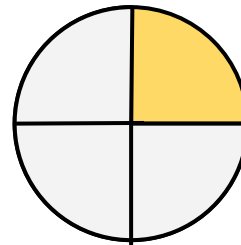
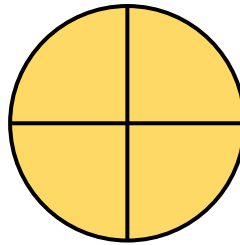
$$\frac{5}{4}$$

IMPROPER FRACTIONS

- Fractions wherein the numerators are more than the value of the denominators.

MIXED FRACTIONS

- Fractions that consist of a whole number and a proper fraction.



$$1 \frac{1}{4}$$

IMPROPER FRACTION TO MIXED FRACTION

1. Divide the numerator from the denominator.
2. Write the quotient as the new whole number, and the remainder as the new numerator.
3. The denominator remains the same.

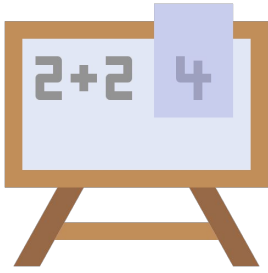
MIXED FRACTION TO IMPROPER FRACTION

1. Multiply the denominator with the whole number.
2. Add the product to the current numerator to get the new numerator.
3. The denominator remains the same.



CONCEPTS

ADDITION OF FRACTIONS



Step 1: Check that the denominators are the same.

Step 2: Add the numerators as usual.

Step 3: Simplify the fraction if possible.

Examples: $\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$ | $\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$

There will be times when you will be adding two fractions with different denominators. Here is what you need to do:

Step 1: Find the Least Common Denominator (LCD).

Step 2: Change each fraction to make their denominators the same with the LCD.

Step 3: Proceed to adding the fractions as usual.

$$\frac{1}{3} + \frac{1}{6} = \frac{1}{3} \times \frac{2}{2} = \frac{2}{6} + \frac{1}{6} = \frac{3}{6} = \frac{1}{2}$$

Step 1

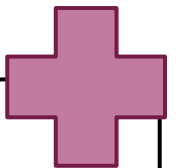
3 = 3, 6, 9, 12, 18...

6 = 6, 12, 18...

Step 2

Step 3

REMEMBER!

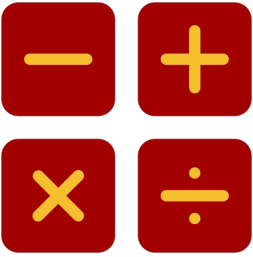


If the sum becomes an improper fraction, convert it into a mixed fraction to simplify it.

When adding mixed fractions, convert it first into an improper fraction then convert it back again into a mixed fraction.



CONCEPTS



SUBTRACTION OF FRACTIONS

Step 1: Check that the denominators are the same.

Step 2: Subtract the numerators as usual.

Step 3: Simplify the fraction if possible.

Examples: $\frac{5}{7} - \frac{3}{7} = \frac{2}{7}$ | $\frac{4}{5} - \frac{1}{5} = \frac{3}{5}$

There will be times when you will be subtracting two fractions with different denominators. Here is what you need to do:

Step 1: Find the Least Common Denominator (LCD).

Step 2: Change each fraction to make their denominators the same with the LCD.

Step 3: Proceed to subtracting the fractions as usual.

$$\frac{1}{2} - \frac{1}{4} = \frac{1}{2} \times \frac{2}{2} = \frac{2}{4} - \frac{1}{4} = \frac{1}{4}$$

Step 1

2 = 2, 4, 8, 10, 12...

4 = 4, 8, 12...

Step 2

Step 3

REMEMBER!

If the difference becomes an improper fraction, convert it into a mixed fraction to simplify it.

When subtracting mixed fractions, convert it first into an improper fraction then convert it back again into a mixed fraction.



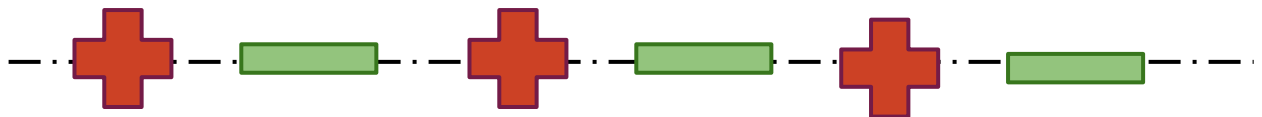
PRACTICE TIME!

Let us try to solve the following equations below.

$$\frac{4}{10} + \frac{5}{10}$$

$$\frac{12}{7} + \frac{10}{14}$$

$$1\frac{3}{5} + 2\frac{2}{4}$$



$$\frac{7}{8} - \frac{3}{9}$$

$$\frac{10}{6} - \frac{7}{4}$$

$$2\frac{2}{3} - 1\frac{1}{4}$$



TABLE OF ACTIVITIES

Ages 7-9 (Basic)		<u>G3 - G4</u>
1	Check for Explosives	
2	Bonfire Night	
3	Celebrate Guy Fawkes	
4	Collect the Explosives	
5	Stop the Bomb	
Ages 9-11 (Advanced)		<u>G5 - G6</u>
6	We are Lost	
7	Leader of the Plot	
8	Stop the Gunpowder Plot	
9	Fireworks Night	
10	The Historians	



CHECK FOR EXPLOSIVES

G3-G4
Basic

Before entering the premises of the House of Parliaments, the belongings of the people are being checked during this night. Check the equations below and provide the correct answers.

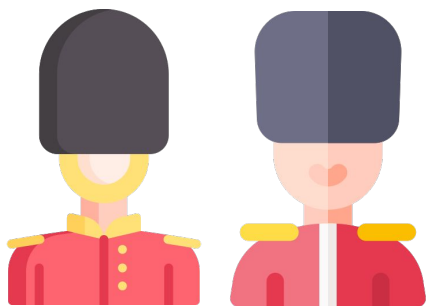
The sum of $\frac{2}{14}$ and $\frac{5}{7}$ is $\frac{6}{14}$.

When $\frac{4}{9}$ is added to $\frac{2}{6}$ you get $\frac{7}{24}$.

The sum of $\frac{3}{10}$ and $\frac{1}{4}$ is $\frac{5}{10}$.

When $\frac{2}{12}$ is added to $\frac{5}{6}$ you get $\frac{11}{12}$.

The sum of $\frac{5}{3}$ and $\frac{6}{5}$ is $\frac{8}{15}$.



Explosives are not allowed.
Let us check your belongings
before entering.



BONFIRE NIGHT

G3-G4
Basic

We will be celebrating Bonfire Night tonight. Help keep the fire alive throughout the whole night by providing the answers for the equations below.

$$\frac{12}{4} + \frac{10}{4}$$

1.

$$\frac{15}{21} + \frac{11}{7}$$

2.

$$\frac{8}{5} + \frac{6}{15}$$

3.

$$\frac{13}{20} + \frac{7}{20}$$

4.



$$\frac{7}{4} + \frac{11}{3}$$

5.

$$\frac{8}{9} + \frac{2}{3}$$

6.

$$\frac{9}{12} + \frac{8}{6}$$

7.

$$\frac{4}{9} + \frac{5}{6}$$


8.





CELEBRATE GUY FAWKES


G3-G4
Basic


Guy Fawkes Night is being celebrated by lighting up fireworks. Prepare the fireworks that you will be using for the night and complete the equations below.

$$\frac{2}{12} + \boxed{} + \frac{5}{12} = \boxed{1}$$


$$\boxed{} + \frac{5}{3} + \frac{2}{3} = \boxed{4}$$


$$\frac{9}{7} + \frac{8}{7} + \boxed{} = \boxed{3}$$


$$\frac{7}{4} + \frac{6}{4} + \frac{6}{4} = \boxed{}$$


$$\frac{10}{6} + \boxed{} + \frac{15}{6} = \boxed{6}$$


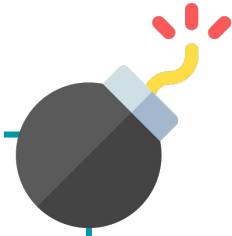


COLLECT THE EXPLOSIVES

G3-G4
Basic

Collect all the explosives on the way to help stop the explosion. Provide the sum of the mixed numbers along the way. Don't forget to simplify your answers.

$$1 \frac{2}{3} + 1 \frac{1}{4} = \underline{\hspace{2cm}}$$



$$1 \frac{2}{4} + 2 \frac{1}{2} = \underline{\hspace{2cm}}$$

$$2 \frac{3}{6} + 2 \frac{2}{4} = \underline{\hspace{2cm}}$$



$$1 \frac{4}{5} + 1 \frac{1}{5} = \underline{\hspace{2cm}}$$

$$2 \frac{1}{3} + 1 \frac{3}{6} = \underline{\hspace{2cm}}$$

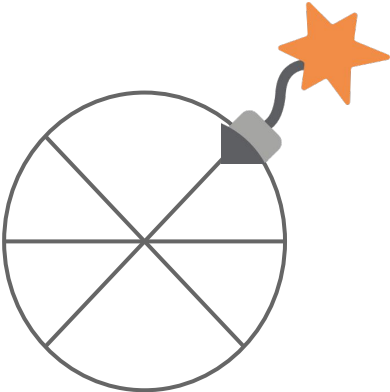


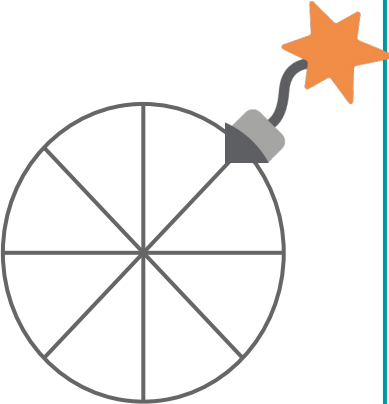
STOP THE BOMB

G3-G4
Basic

Oh no! The bomb is about to explode. Help detonate the bomb by shading it depending on the given fractions. Write down the fraction sentence equivalent to the equations.

Example of a Fraction sentence: $\frac{1}{2}$ plus $\frac{1}{2}$ is equals to 1.

FRACTION	INSTRUCTION	FRACTION SENTENCE
	Shade $\frac{1}{6}$ Shade $\frac{4}{6}$ more. What fraction is shaded now? _____	

FRACTION	INSTRUCTION	FRACTION SENTENCE
	Shade $\frac{2}{8}$ Shade $\frac{3}{8}$ more. What fraction is shaded now? _____	



WE ARE LOST

G5-G6
Advanced

Jerry and his friends can't find their way to the bonfire that they made. Help them find the right way as you find the missing numerators and denominators to complete the equations below.

$$\frac{\boxed{}}{3} - \frac{1}{\boxed{}} = \frac{7}{15}$$

$$\frac{12}{\boxed{}} - \frac{5}{\boxed{}} = \frac{1}{8}$$

$$\frac{13}{\boxed{}} - \frac{\boxed{}}{6} = \frac{14}{75}$$

$$\frac{\boxed{}}{6} - \frac{1}{\boxed{}} = \frac{1}{6}$$

$$\frac{\boxed{}}{3} - \frac{\boxed{}}{3} = \frac{1}{3}$$



Is this the right way?



LEADER OF THE PLOT

G5-G6
Advanced

Guy Fawkes was caught guarding the explosives to be used for the plot but he was not the original leader of the plot. Find out who led the Gunpowder Plot by answering the equations below.

$$A = \frac{1}{6}$$

$$S = \frac{1}{14}$$

$$Y = \frac{3}{22}$$

$$E = \frac{8}{15}$$

$$C = \frac{2}{3}$$

$$T = \frac{13}{15}$$

$$B = \frac{5}{22}$$

$$1) \quad 7 \frac{2}{4} - 6 \frac{5}{6}$$

$$2) \quad 8 \frac{1}{2} - 8 \frac{1}{3}$$

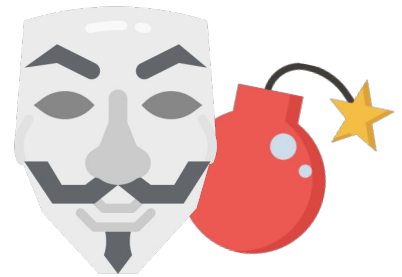
$$3) \quad 10 \frac{2}{3} - 9 \frac{4}{5}$$

$$4) \quad 5 \frac{1}{3} - 4 \frac{4}{5}$$

$$5) \quad 10 \frac{6}{12} - 10 \frac{3}{7}$$

$$6) \quad 8 \frac{4}{8} - 8 \frac{3}{11}$$

$$7) \quad 6 \frac{1}{2} - 6 \frac{4}{11}$$



I led the Gunpowder Plot conspirators. Who am I?

1 2 3 4 5 6 7

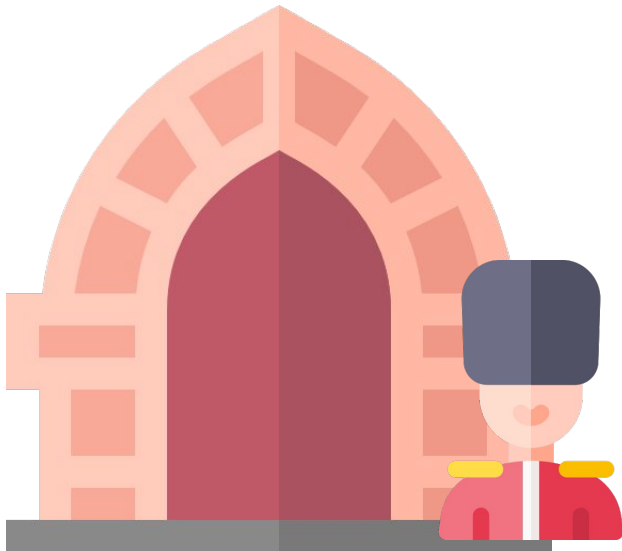
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STOP THE GUNPOWDER PLOT

G5-G6
Advanced

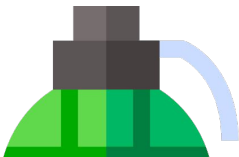
The following are explosives that might have been found in the cellar during the Gunpowder Plot. Identify the answer to the equations below to collect all the explosives and prevent the plot from happening.



$$1) \quad 2 - \frac{5}{6} = \underline{\quad}$$



$$2) \quad 6 - \frac{14}{15} = \underline{\quad}$$



$$3) \quad 5 - \frac{30}{50} = \underline{\quad}$$



$$5) \quad 18 - \frac{7}{10} = \underline{\quad}$$



$$4) \quad 11 - \frac{5}{7} = \underline{\quad}$$



FIREWORKS NIGHT

G5-G6
Advanced

Celebrate the Fireworks Night with your family and friends and answer the following problems below. Don't forget to simplify your answers.

1. Guy spent $\frac{3}{4}$ of an hour walking and $\frac{5}{6}$ of an hour horseback riding. Afterwards, he swam for $\frac{1}{8}$ of an hour. How much time did Guy travel before he went swimming?

2. There are 2 kinds of rocketship firework that can be found in a carton that is $\frac{8}{12}$ feet long. The blue firework is $\frac{2}{15}$ feet long and the orange firework is $\frac{7}{10}$ feet long. How much longer is the orange firework?

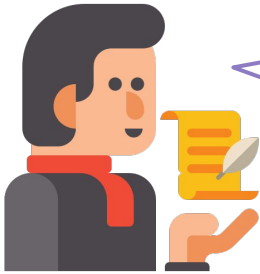
3. To stay healthy Guy decided to walk $\frac{4}{5}$ mile everyday. He walked $\frac{2}{5}$ mile to the city and walked $\frac{1}{4}$ mile back home. How much more does he need to walk if he wants to meet his target distance?



THE HISTORIANS

G5-G6
Advanced

There are different historians who took into account the happenings on the night of November 5. Provide the answers to the following equations below. Write your answers in fraction form.



What is the difference between four and three sixth and four sixth? _____

Find the difference between eight and five seventh and six seventh. _____



What is the difference between fifteen and two fourth and three fourth? _____

Find the difference between two and nine eleventh and ten eleventh. _____



ANSWER GUIDE

Activity 1

1. $\frac{6}{7}$ 2. $\frac{7}{9}$ 3. $\frac{11}{20}$ 4. 1 5. $2\frac{13}{15}$

Activity 2

1. $5\frac{1}{2}$ 2. $2\frac{2}{7}$ 3. 2 4. 1
5. $5\frac{5}{12}$ 6. $1\frac{5}{9}$ 7. $2\frac{1}{2}$ 8. $1\frac{5}{18}$

Activity 3

1. $\frac{5}{12}$ 2. $\frac{7}{3}$ 3. $\frac{4}{7}$ 4. 5 5. $\frac{11}{6}$

Activity 4

1. $2\frac{11}{12}$ 2. 4 3. 5 4. 3 5. $3\frac{5}{6}$

Activity 5

1. $\frac{5}{6} - \frac{1}{6}$ plus $\frac{4}{6}$ is equals to $\frac{5}{6}$.

2. $\frac{5}{8} - \frac{2}{8}$ plus $\frac{3}{8}$ is equals to $\frac{5}{8}$.



ANSWER GUIDE

Activity 6

1. $\frac{2}{3}$ $\frac{1}{5}$ 2. $\frac{12}{16}$ $\frac{5}{8}$ 3. $\frac{13}{25}$ $\frac{2}{6}$
4. $\frac{3}{6}$ $\frac{1}{3}$ 5. $\frac{2}{3}$ $\frac{1}{3}$

Activity 7

1. C 2. A 3. T 4. E 5. S 6. B 7. Y
Word formed: Catesby

Activity 8

1. $1 \frac{1}{6}$ 2. $5 \frac{1}{15}$ 3. $4 \frac{2}{5}$ 4. $10 \frac{2}{7}$ 5. $17 \frac{3}{10}$

Activity 9

1. $1 \frac{7}{12}$ 2. $\frac{17}{30}$ 3. $\frac{3}{20}$

Activity 10

1. $3 \frac{5}{6}$ 2. $7 \frac{6}{7}$ 3. $14 \frac{3}{4}$ 4. $1 \frac{10}{11}$



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