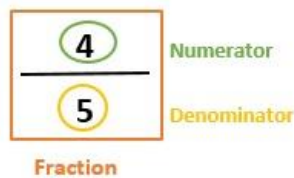# Fractions - Worksheet

Fraction: A fraction is a part of a whole thing.

Numerator: This is the number on the top that represents the number of fractional parts.

Denominator: This is the number at the bottom that represents the number in which the whole has been divided into.

Example

Types of Fractions

Proper fraction: numerator is less than denominator. e.g. $\frac{2}{3}$ (2 is less than 3)

Improper fraction: numerator is greater than denominator. e.g. $\frac{8}{5}$ (8 is greater than 5)

Mixed fraction: A whole number and a fraction together. e.g. $2\frac{3}{11}$ (2 is a whole number and 3/11 is a fraction)

Converting mixed fractions to improper fractions

Multiply the whole number with the denominator and add them with the numerator; then place the answer on top of the denominator to get the improper fraction. e.g.

$2\frac{3}{5} \rightarrow \frac{13}{5}$ (new numerator: 5×2=10+3=13)

Converting Fractions to Decimals

Method: The numerator is divided by the denominator to convert it into a decimal.

Example

$\frac{3}{5} = 3 \div 5 = 0.60$

Addition of fractions

Method: To add two fractions, the denominator needs to be same for both the fractions. If they are different you need to find the Least Common Denominator (LCM) for both of them and change the individual denominators to the LCM.

Then make necessary adjustments to the numerators of the individual fractions.

The denominator of the addition result would be the LCM. And you need to add the individual numerators to find the numerator for the result.

At the end, simplify the result if needed.

<u>Example</u>

$$\frac{1}{6} + \frac{3}{4}$$

The LCM for '6' and '4' is 12.

To turn the denominator of the first fraction to '12' we need to multiply it by '2' and for the second denominator we need to multiply by '3'. The numerators of the fractions need to be multiplied by the same numbers respectively.

$$\frac{1}{6} = \frac{1 \times 2}{6 \times 2} = \frac{2}{12}$$

and,

$$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

So,

$$\frac{2}{12} + \frac{9}{12} = \frac{2+9}{12} = \frac{11}{12}$$

Subtraction of fractions

Method: To subtract one fraction from another, the denominator needs to be same for both the fractions. If they are different you need to find the Least Common Denominator (LCM) for both of them and change the individual denominators to the LCM.

Then, make necessary adjustments to the numerators of the individual fractions.

The denominator of the subtraction result would be the LCM. And you need to subtract the numerator from the second fraction from the first one to find the numerator for the result.

At the end, simplify the result if needed. Note that the answer could be negative if the second fraction is larger than the first one.

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<u>Example</u>

$$\frac{5}{6} - \frac{3}{4}$$

The LCM for '6' and '4' is 12.

To turn the denominator of the first fraction to '12' we need to multiply it by '2' and for the second denominator we need to multiply by '3'. The numerators of the fractions need to be multiplied by the same numbers respectively.

$$\frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12}$$

and,

$$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

So,

$$\frac{10}{12} - \frac{9}{12} = \frac{10 - 9}{12} = \frac{1}{12}$$

Multiplication of fractions

Method: Multiply numerators of the fractions and denominator of the fractions separately to find the answer and simplify the fraction if necessary. If any of the fractions are mixed fractions, change them into an improper fraction first before doing the calculation.

<u>Example</u>

$$\frac{6}{7} \times \frac{8}{5} = \frac{48}{35} \rightarrow 1\frac{13}{35}$$

Working notes:

Multiplying numerators: 6×8=48; multiplying denominators: 7×5=35

Answer fraction: $\frac{48}{35}$ which is simplified to a mixed fraction by dividing 48 by 35: $1\frac{13}{35}$

Division of fractions

Method: Turn the second fraction upside down to change the divide sign into a multiplication and follow the method of multiplication as with the previous example.

<u>Example</u>

$$\frac{7}{8} \div \frac{4}{5}$$

Turning the second fraction upside down and change the division sign to multiplication,

$$\frac{7}{8} \times \frac{5}{4}$$

Do the multiplication to get the answer:

$$\frac{7}{8} \times \frac{5}{4} = \frac{35}{32} \to 1\frac{3}{32}$$

Practice Exercises

Question 1:

Complete the table:

No.	Fraction	Numerator	Denominator
1	4/5		
2	7/30	7	
3		9	59
4	40/		89
5		3	8

Question 2:

Convert these fractions into decimals:

No.	Fraction	Answer
1	27/81	
2	74/23	
3	5/6	
4	5/16	
5	21/9	

Question 3:

Add these fractions:

No.	Fraction 1	Fraction 2	Answer
1	15/27	2/9	
2	18/7	11/21	
3	5/6	2/3	
4	5/16	32/50	
5	9/21	5/6	

Question 4:

Subtract fraction 2 from fraction 1:

No.	Fraction 1	Fraction 2	Answer
1	2/5	1/6	
2	11/33	15/33	
3	2/3	1/5	
4	32/50	6/25	
5	5/6	9/12	

Question 5:

Multiply these fractions:

No.	Fraction 1	Fraction 2	Answer
1	27/81	2/5	
2	18/77	11/33	
3	5/6	2/3	
4	5/16	32/50	
5	21	2/3	

Question 6:

Divide these fractions:

No.	Fraction 1	Fraction 2	Answer
1	27/81	2/5	
2	18/77	11/33	
3	5/6	2/3	
4	5/16	32/50	
5	$2\frac{3}{7}$	2/3	

Question 7:

There were 15 pens altogether from which Anne and Louise were given 1/3 and 1/5 of the pens respectively. How much is left from the total?

Question 8:

Melissa makes $25.00 an hour for the first 40 hours in a week and one and a half times for each hour over 40 that she works in one week. Calculate her salary in a week in which she has worked 63 hours.