ASHFIELD JUNIOR SCHOOL
TOGETHER WE ACHIEVE

Fractions knowledge organiser

Common Factors

Factors of 48

1	2	3	4	6	8	12	16	24	48

Factors of 30

1	2	3	5	6	10	15	30

Common factors: 1, 2, 3, 6

Common Multiples

Multiples of 3

3	...	18	21	24	...	39	42

Multiples of 7

7	14	21	28	35	42

Common multiples: 21, 42...

Primes

A prime number has only 1 and itself as factors: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 33, 37, 41, 43

A composite number has factors other than 1 and itself.

Squares and Cubes

Square numbers result from a number being multiplied by itself (e.g. 5 × 5 = 25):

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

Cube numbers result from a number being multiplied by itself twice (2 × 2 × 2 = 8):
1, 8, 27, 64, 125

Adding & Subtracting Fractions

When Two Fractions Have the Same Denominator

If the two fractions in the calculation have the same denominator, the denominator will stay the same. Then all you need to do is simply add or subract the numerators to find the sum of the fractions.

$\frac{2}{5} + \frac{1}{5} = \frac{3}{5}$ $\quad \frac{4}{8} - \frac{2}{8} = \frac{2}{8}$

When Two Fractions Have Different Denominators

First, find the smallest common denominator (smallest whole number that has both denominators as factors). Rewrite the fractions with that denominator then add or subtract. When working with mixed numbers, add or subtract the whole numbers too.

$\frac{1}{3} + \frac{1}{2} =$ $\quad \frac{1}{2} - \frac{1}{5} =$

$\frac{2}{6} + \frac{3}{6} = \frac{5}{6}$ $\quad \frac{5}{10} - \frac{2}{10} = \frac{3}{10}$

Factors are numbers we can multiply together to get another number.

Multiples are the result of one number multiplied by another. For example, 56 is a **multiple** of 7.

Mixed Numbers

Mixed numbers contain a whole number and a fraction.

$2\frac{1}{4}$

$2\frac{1}{4}$ is a mixed number.
The whole number is 2.
The fraction is $\frac{1}{4}$.

$15\frac{5}{8}$

$15\frac{5}{8}$ is a mixed number.
The whole number is 15.
The fraction is $\frac{5}{8}$.

Improper Fractions

An improper fraction is a fraction where the numerator is greater than or equal to the denominator.

$\frac{5}{3}$ ← numerator
denominator

$\frac{8}{5}$ ← numerator
denominator

Multiplying a Fraction by a Whole Number

$$\frac{1}{3} \times 4$$

First, put the whole number over 1 so that it is a fraction.

$$\frac{1}{3} \times \frac{4}{1}$$

Multiply the numerators together, and multiply the denominators together.

$$\frac{1}{3} \times \frac{4}{1} = \frac{4}{3}$$

Can your answer be simplified?

$$\frac{4}{3} = 1\frac{1}{3}$$

Division

The Problem:

$$\frac{2}{6} \div \frac{2}{3}$$

Flip the second fraction to change the problem from division to multiplication.

$$\frac{2}{6} \times \frac{3}{2}$$

Step 1

$$\frac{2}{6} \times \frac{3}{2} = \frac{6}{12}$$

First multiply the numerators together. Do the same for the denominators.

Simplifying Fractions

Divide by Common Factors

$$\frac{12 \div 6}{18 \div 6} = \frac{2}{3}$$

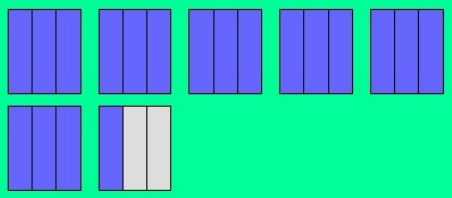
Compare $\frac{3}{4}$ & $\frac{2}{3}$

The LCM of 3 and 4 is 12

$$\frac{3 \times 3}{4 \times 3} = \frac{9}{12} \qquad \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

$$\frac{9}{12} > \frac{8}{12}$$

Convert the mixed number to an improper fraction:



$$6\frac{1}{3} \rightarrow \frac{19}{3}$$

6 x 3 = 18

18 + 1 = 19

19 ÷ 3 = 6

6 whole ones r 1