Quick Guide to Fractions

Fractions are another way of expressing division. The expression 12/3 is equal to 4 because 12 divided by 3 is 4. If you don't believe me, check that 3 * 4 = 12; that's an **equivalent** statement.

Now you have your **proper fractions**, where the **numerator** (top) is smaller than the **denominator** (bottom), like 5/12. These give numbers that are less than 1.

On the other hand, there are **improper fractions** like 19/8. Think of pizzas each cut into eight slices; each slice is one eighth, or 1/8 of a pizza. Then 19 slices would be the same as 16 slices and 3 more slices; making 2 pizzas and 3 extra slices.

Therefore we get **19 / 8 = 2 + 3/8** , which is written as **2 3/8** , called a **mixed number**.

To convert 19/8 you do division; 8 into 19 goes 2 times with 3 left over; so 2 3/8.

If you have a mixed number like 3 1/7 , you do the reverse: 3 * 7 + 1 = 22 ; so 22/7.

Some misguided people (not you!) think that pi is equal to 3 1/7; it's merely close. Pi is an **irrational number**, which means it's a real number, but not equal to any fraction. (But 355/113 is closer to pi.)

Fractions can be put into lowest terms, meaning you cancel out common factors of the top & bottom.

*For example, 6 / 8 = (2*3) / (2*4) = 3 / 4 ; six eighths equals three fourths.*

Examples of **fraction operations:**

Multiplying:

*(3/4) * (5/6) = (3*5) / (4*6) = 15 / 24 = 5/8 (in lowest terms.)*

Dividing :

*(3/4) / (5/6) = (3/4) * (6/5) = 18 / 20 = 9/10 (invert and multiply)*

Adding :

(3/4) + (5/6) = (9/12) + (10/12) = (9+10)/12 = 19/12 = 1 7/12 (common denominator)

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Adapted from Dansmath.com