

FRACTION BASICS

PRAXIS FLASHCARD #47

FRACTION: DEFINITION, MEANING, AND PARTS

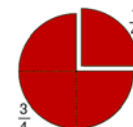
A **fraction** represents equal-sized parts of a whole. The top number of a fraction is called the **numerator** because it is the number of parts. The **denominator** is a denominate number (measurement of size) telling how many of the equal-sized parts are in the whole. The line between the numerator and denominator indicates division and is called a **vinculum**. Note that the parts MUST be equal-sized. The parts are usually indicated by coloring them or shading them (as shown to the right)



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COMMON FRACTION

A **common fraction** is also known as a simple fraction. It represents parts of a whole and is written as a division problem: $\frac{1}{4}$ or $1/4$. The 1 in this fraction is the numerator, and the 4 is the denominator.



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MIXED NUMBER

A **mixed number** is a whole number and a proper fraction combined. Mixed numbers may also be called mixed fractions. This graphic shows two whole pizzas and a fraction of 3 pieces out of 4 $\rightarrow 2 \frac{3}{4}$



PRAXIS FLASHCARDS #48 & 49

PROPER & IMPROPER FRACTIONS

A **proper fraction** has a numerator smaller than the denominator and indicates a fraction less than one whole: $\frac{3}{8}$ $\frac{1}{4}$ $\frac{14}{15}$ $\frac{4}{5}$

An **improper fraction** has a numerator larger than (or equal to) the denominator and indicates a fraction that is equal to one or more than one whole: $\frac{3}{2}$ $\frac{7}{4}$ $\frac{16}{15}$ $\frac{15}{15}$ $\frac{99}{5}$

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CONVERT IMPROPER FRACTION TO MIXED NUMBER

An improper fraction shows a total number of parts, but in those parts is at least one whole. If the parts are measured in thirds, each third in the numerator of the improper fraction makes one whole.

To convert an improper fraction to a mixed number, divide the numerator by how many parts are in a whole. The quotient becomes the whole number and the remainder becomes the numerator of the fraction part of the mixed number. For example, $\frac{23}{3}$ equals 23 divided by 3, which is 7 r 2 or $7 \frac{2}{3}$

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

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CONVERT MIXED NUMBER TO IMPROPER FRACTION

A mixed number indicates the whole amounts and the parts (a fraction). For each whole number, there are a complete number of parts (for example, if the parts are measured in thirds, each whole has three thirds).

To convert a mixed number to an improper fraction, multiply the whole number by how many parts are in a whole, and then add the remaining parts. For example, $6 \frac{2}{3}$ means there are 6 whole amounts of $\frac{3}{3}$ ($6 \times 3 = 18$) so there are $\frac{18}{3}$. Adding the remaining $\frac{2}{3}$ results in a total of $\frac{20}{3}$ in $6 \frac{2}{3}$.

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LCD

The **Lowest Common Denominator (LCD)** of two or more fractions is the smallest number that is a multiple of all the denominators. One way to find the LCD is to count by each of the denominators and find the first number that is a multiple of all. Another way to find the LCD is to write a prime factorization of each denominator, lined up by factors. Then “bring down” one of each factor and multiply.

<p>9, 18, 27, <u>36</u>, 45, ... 12, 24, <u>36</u>, 48, 60, ... 18, <u>36</u>, 54, 72, ...</p> <p>The LCM of 9, 12, and 18 is 36.</p>	$9 = 3 \times 3$ $12 = 2 \times 2 \times 3$ $18 = 2 \times 3 \times 3$ $\text{LCM} = 2 \times 2 \times 3 \times 3 = 36$
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EQUIVALENT FRACTIONS

Equivalent fractions are fractions which simplify to the same simple fraction. When two fractions are equivalent, their cross products are equal:



$3 \times 6 = 18$

$2 \times 9 = 18$

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SIMPLIFYING (REDUCING) FRACTIONS

Simplifying fractions is sometimes (incorrectly) called reducing a fraction. The term “reduce” is seldom used in mathematics today. Expand the numerator and denominator into prime factorizations. “Cancel” any ones such as 3/3 or 5/5. Then multiply straight across those numbers that are left. The resulting (simplified) fraction is equivalent to the original fraction but is in simplified form.

$$\frac{24}{36} = \frac{2 \times 2 \times 2 \times 3}{2 \times 2 \times 3 \times 3} = \frac{2}{3}$$

PRAXIS FLASHCARD #263

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To convert an improper fraction to a mixed number, divide the numerator by how many parts are in a whole. The quotient becomes the whole number and the remainder becomes the numerator of the fraction part of the mixed number. For example,

$\frac{23}{3}$ equals 23 divided by 3, which is 7 r 2 or $7\frac{2}{3}$

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COMPARING & ORDERING FRACTIONS

To compare two fractions, cross multiply.

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

To compare or order more than two fractions, change them to common denominators so you can compare or order the numerators only.

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CONVERTING FRACTION TO DECIMAL/PERCENT

Change a **fraction to a decimal** by dividing the denominator into the numerator. Keep dividing until the decimal number repeats or terminates. Draw a line (vinculum) above the repeating portion.

Change a **fraction to a percent** by first changing it to a decimal as explained above, and then moving the decimal point two places to the right. Remember to append the percent symbol.