**Fractions Study Guide**

**The Basics:**

A *fraction* shows equal parts of a whole.

![Fraction representation]

3 → numerator
8 → denominator

The **numerator** of a fraction tells the number of parts that were counted, shaded, or separated. There are 3 pieces shaded.

The **denominator** of a fraction tells the total equal parts the whole has been cut into. There are 8 pieces total.

**Fraction of a set:**

1 of the 4 stars are shaded.

\[
\frac{1}{4}
\]

3 of the stars are unshaded.

\[
\frac{3}{4}
\]

**Adding fractions with like denominators.**

Add the numerators, but leave the denominator the same.

\[
\frac{2}{5} + \frac{1}{5} = \frac{3}{5}
\]

5 stays the same.
Subtracting fractions with like denominators:
Subtract the numerators, but leave the denominators the same.

\[
3 - 1 = 2
\]

\[
\frac{3}{5} - \frac{1}{5} = \frac{2}{5}
\]

5 stays the same

Mixed numbers:
A mixed number is a whole number and a fraction together. They are “mixed”

Adding to create a mixed number:

\[
\frac{3}{4} + \frac{3}{4} = \frac{1}{4}
\]

1 whole and \(\frac{2}{4}\) pizzas total
Equivalent Fractions:
Fractions that are equal
How can you know if fractions are equal?
Pictures

Comparing Fractions
How do you know which fraction is bigger?
Pictures

Another strategy is called the crisscross bottoms-up method.
- multiply the denominator of one fraction with the numerator of the other fraction.
- Example: here you would multiply $8 \times 3$ and $6 \times 5$

- You must write the products above the fractions
- Then compare the products $30 > 24$ so $\frac{3}{6} < \frac{5}{8}$
Fractions on a number line

Each section of the number line represents 1 eighth.

8 total parts of the number line.

This number line represents thirds.

Fractional part of a group

8 triangles total

4 triangles represents 1/2 of the triangles
So 1/2 would be 4 triangles

2 triangles represents 1/4 of the triangles
So 1/4 would be 2 triangles
Great study and comparing tool; Fraction bars

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