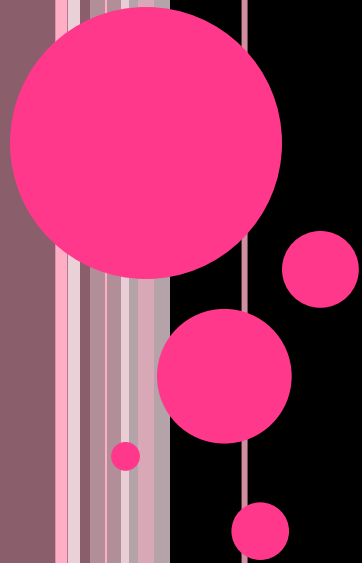


5th Grade

Taking the Fear Out of Fractions



FRACTIONS

- The top number in a fraction is called the **numerator**.
- The bottom number in a fraction is called the **denominator**.

$$\frac{7}{9}$$

← numerator

← denominator



EQUIVALENT FRACTIONS

- You can use different fractions to name the same amount.
- You can find **equivalent fractions** two ways...
- Multiply **BOTH** the **numerator** and the **denominator** by the same number.

OR

- Divide **BOTH** the **numerator** and the **denominator** by the same number.



If you are starting with single digit numerators or denominators, you will probably want to **multiply BOTH** by the same number.

$$\frac{3}{8} = \frac{3 \times 2}{8 \times 2} = \frac{6}{16}$$



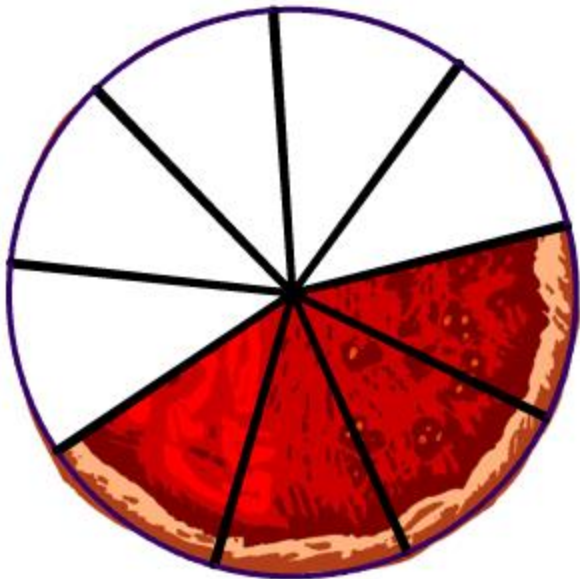
If you are starting with larger numbers as numerators or denominators, you will probably want to divide **BOTH** by the same number.

$$\frac{16}{24} = \frac{16 \div 8}{24 \div 8} = \frac{2}{3}$$



ADDING & SUBTRACTING LIKE FRACTIONS

- Like fractions means the denominators are the same.
- You add or subtract only the numerators.
- **The denominator stays the same!**



$$\frac{4}{9} + \frac{2}{9} = \frac{6}{9}$$



ADDING & SUBTRACTING UNLIKE FRACTIONS

- Unlike fractions means the denominators are NOT the same.
- Make them like fractions by finding an equivalent fraction first.
- Then add or subtract the same way as before.
- **The denominator stays the same!**

$$\frac{1}{4} + \frac{2}{5} =$$



Start by writing out the multiples of each denominator. Find the least common multiple

$$\frac{1}{4} = 4, 8, 12, 16, 20$$

$$\frac{2}{5} = 5, 10, 15, 20$$

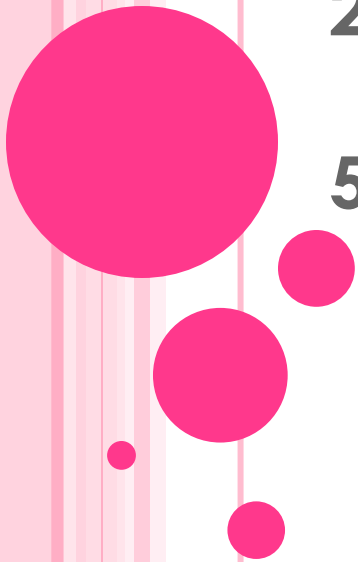


20 IS THE LEAST COMMON MULTIPLE.

$$\frac{1}{4} \times \frac{5}{5} = \frac{5}{20}$$

$$\frac{2}{5} \times \frac{4}{4} = \frac{8}{20}$$

$$\frac{5}{20} + \frac{8}{20} = \frac{13}{20}$$



Adding & Subtracting Mixed Numbers

- Mixed Numbers have a whole number and a fraction. (2 $\frac{1}{2}$ cups of sugar for a recipe)

$$4\frac{4}{5} - 1\frac{1}{10} =$$

- Find the least common denominator.
- Since 10 is the least common multiple, it is the least common denominator.



$$4\frac{4}{5} - 1\frac{1}{10} =$$

- Change the fractions into like fractions with 10 as the denominator.

$$\frac{4 \times 2}{5 \times 2} = \frac{8}{10}$$

- Subtract the whole numbers and fractions.

$$4\frac{8}{10} - 1\frac{1}{10} = 3\frac{7}{10}$$



- Sometimes you will have to regroup to solve the problem.
- Rename 1 whole from the 4 to subtract the fractions. Rename the 1 as $\frac{12}{12}$.

$$\begin{array}{r} 4 \frac{3}{12} \\ - 2 \frac{8}{12} \\ \hline \end{array}$$

$$4 \frac{3}{12} = \overset{12}{1} 3 \frac{15}{12}$$

$$\begin{array}{r} 3 \frac{15}{12} \\ - 2 \frac{8}{12} \\ \hline 1 \frac{7}{12} \end{array}$$



Multiplying Fractions

- Multiply the numerators straight across.
- Multiply the denominators straight across.

$$\frac{5}{9} \times \frac{1}{2} = \frac{5}{18}$$



Dividing Fractions

- You can divide a whole number by a fraction.

$$5 \div \frac{1}{3} =$$

- Write 5 as $\frac{5}{1}$. $\frac{5}{1} \div \frac{1}{3} =$

- Use the reciprocal of the divisor (flip the second fraction) & **multiply**.

$$\frac{5}{1} \times \frac{3}{1} = \frac{15}{1} = 15$$



Dividing a Fraction by a Fraction

- You can divide a fraction by a fraction.

$$\frac{6}{8} \div \frac{3}{4} =$$

- Use the reciprocal of the divisor (flip the second fraction) & multiply.

$$\frac{6}{8} \times \frac{4}{3} = \frac{24}{24} = 1$$

