ROUNDING AND ADDING FRACTIONS

To estimate with fractions, a good place to start is rounding each fraction to the nearest one-half, and then estimate. Think of the number line and where each fraction belongs on it. Estimating fractions before performing the actual operations help to know if the answer is reasonable.

To find sums with fractions, we'll explore the meaning of adding fractions and then practice additional problems. First we'll look at adding fractions with like denominators using fraction bars and justify the sums with fraction bars. After using the fraction bars to add, we'll practice adding fractions with like denominators using paper and pencil.

We can also use fraction bars to add fractions with unlike denominators and justify the sums. After using fraction bars to add fractions with unlink denominators, we'll practice adding fractions with unlike denominators using paper and pencil.

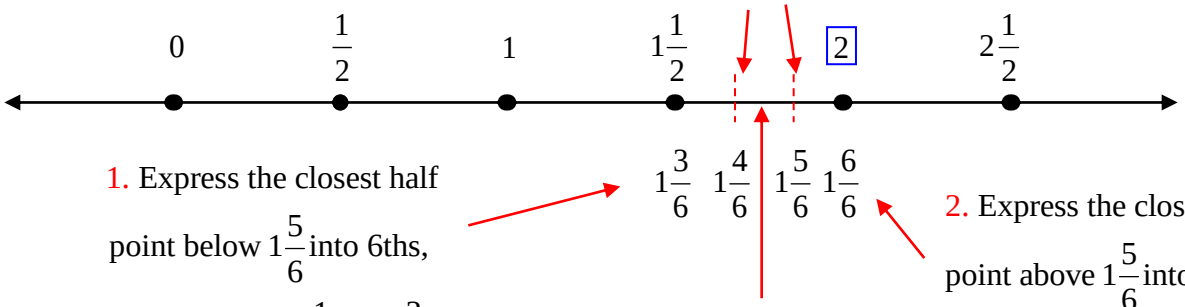
Rounding Fractions to the Nearest Half

To estimate fractions to the nearest half, think of the number line and where each fraction is located on it.

Follow the steps in red to round a fraction to the nearest half. Determine if the fraction is halfway or more between the two points represent halves on the number line.

Let's round $1\frac{5}{6}$ to nearest half.

3. Locate all of the 6ths between the two half marks being used. They are equally spaced.



1. Express the closest half point below $1\frac{5}{6}$ into 6ths, that is change $1\frac{1}{2}$ to $1\frac{3}{6}$.

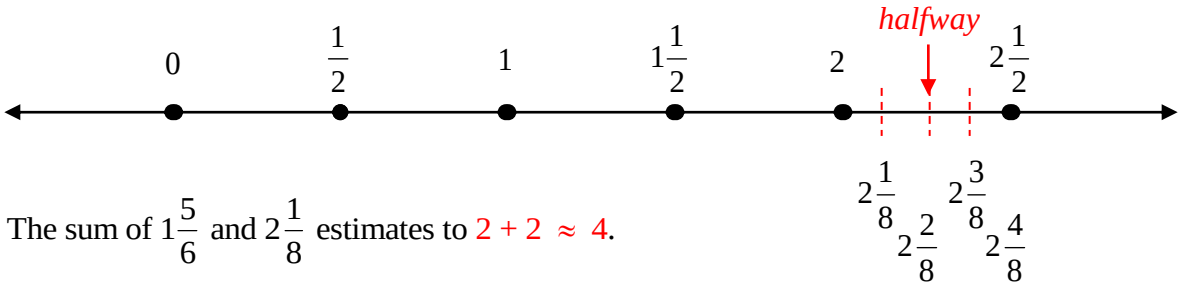
2. Express the closest half point above $1\frac{5}{6}$ into 6ths, that is change 2 to $1\frac{6}{6}$.

4. Find halfway point between the two half marks being used.

5. Since $1\frac{5}{6}$ is more than halfway between $1\frac{1}{2}$ and 2, $1\frac{5}{6}$ rounds to 2.

Estimate the sum of $1\frac{5}{6}$ and $2\frac{1}{8}$.

$2\frac{1}{8}$ rounds to 2 because it is closer to 2 than $2\frac{1}{2}$.

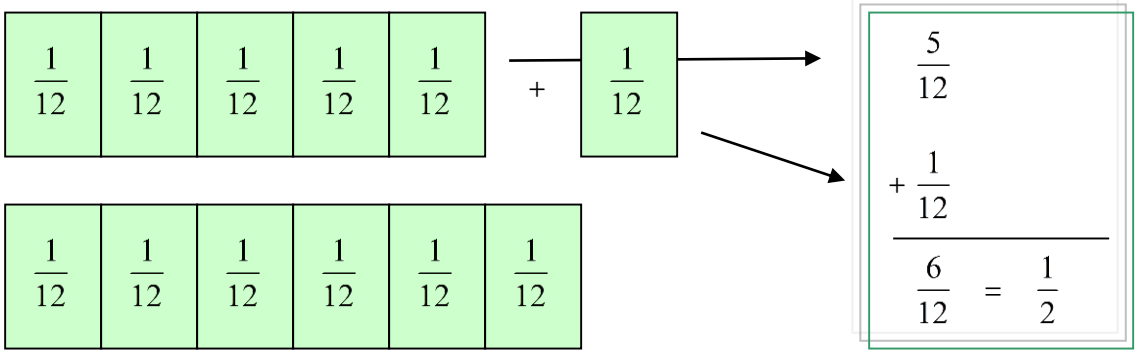


The sum of $1\frac{5}{6}$ and $2\frac{1}{8}$ estimates to $2 + 2 \approx 4$.

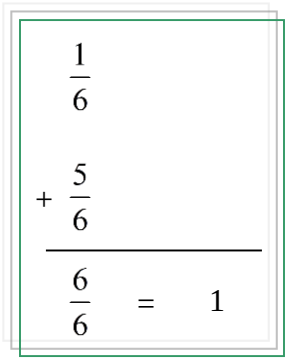
Note: $\approx$ is a symbol that means "approximately equal to."

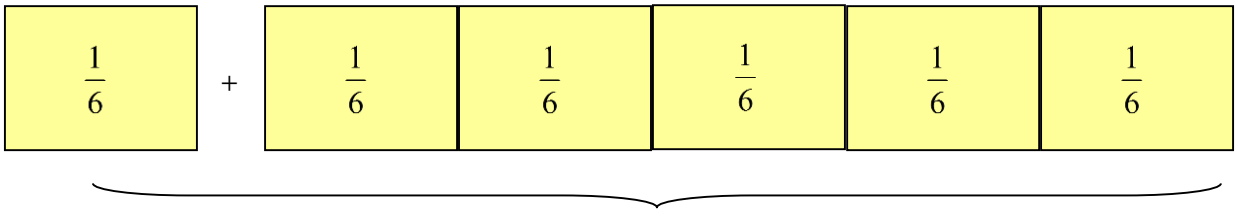
Adding Fractions with Like Denominators Using Fraction Bars

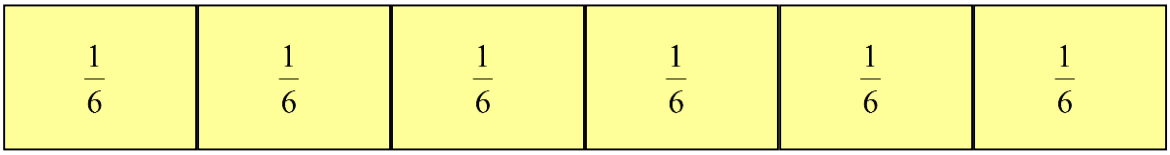
Study the two addition problems below. To add fractions with like denominators, only add the numerators
(top numbers of the fractions).



$(\frac{6}{12} \div \frac{6}{6} = \frac{1}{2})$





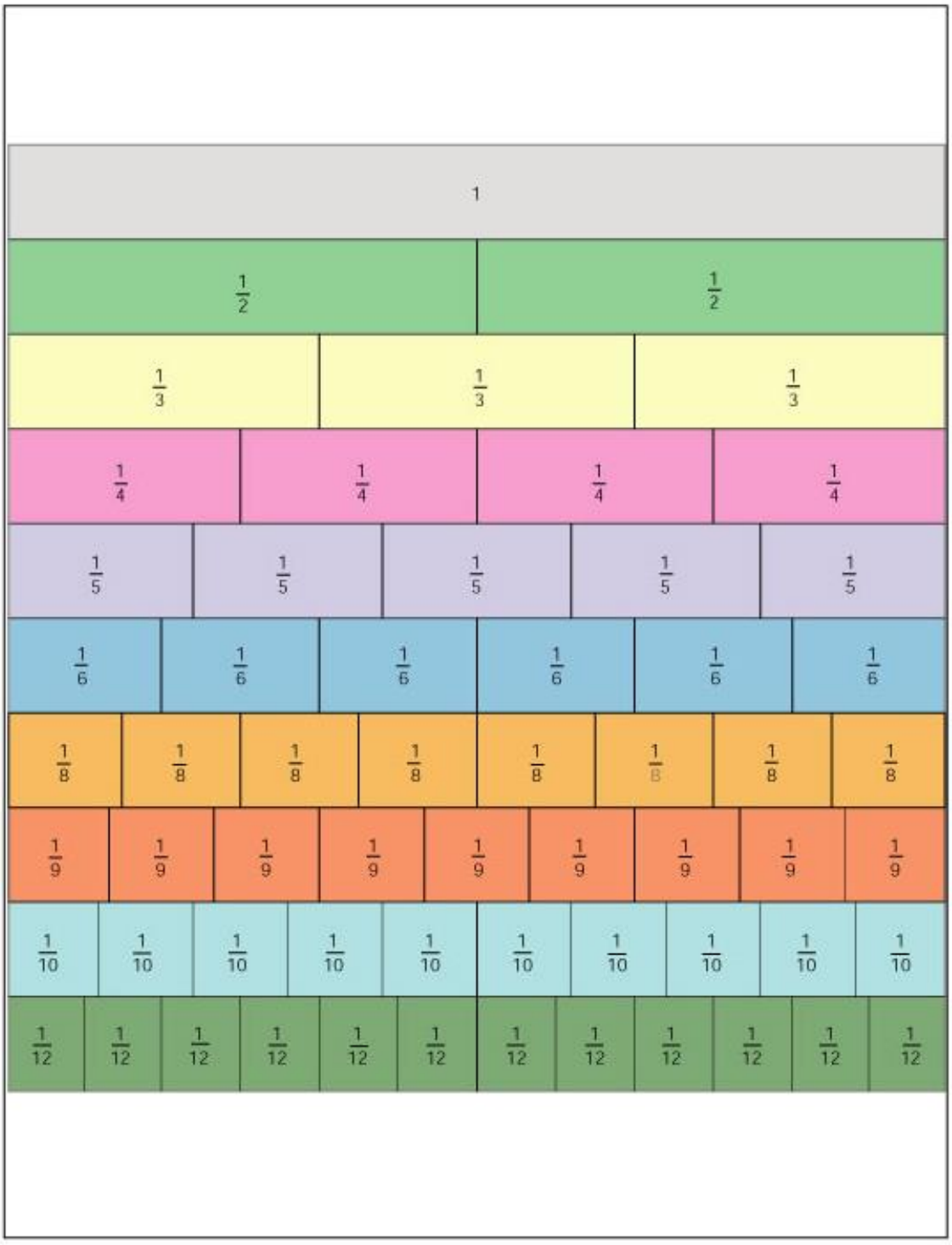


$\frac{6}{6} = 1$

Fraction Bars

Look over these fraction strips. Each strip represents 1 whole.
1 = 2 halves, 3 thirds, 4 fourths, 5 fifths, 6 sixths, and so on.

Thus, $1 = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \frac{6}{6}$ and so on...



Adding Fractions with Like Denominators

Find $\frac{4}{9}+\frac{2}{9}$

$$\begin{array}{r} \frac{4}{9} \\ +\ \frac{2}{9} \\ \hline \frac{6}{9} \end{array}$$ reduces to $\frac{2}{3}$

Find $\frac{5}{8}+\frac{7}{8}$

$$\begin{array}{r} \frac{5}{8} \\ +\ \frac{7}{8} \\ \hline \frac{12}{8}=1\frac{4}{8} \end{array}$$ reduces to $1\frac{1}{2}$

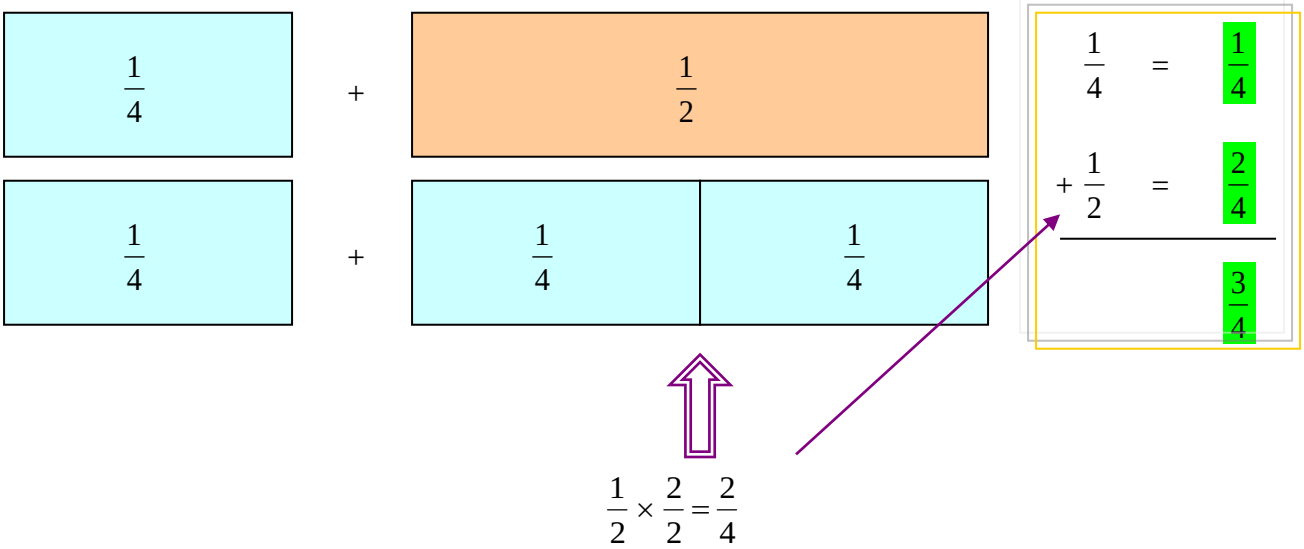
$\frac{12}{8}$ is an improper fraction. Express improper fractions as mixed numbers.

$\frac{12}{8}=\frac{8}{8}+\frac{4}{8}$ or $8\overline{)12}$ (1; 8) $=1\frac{4}{8}=1\frac{1}{2}$

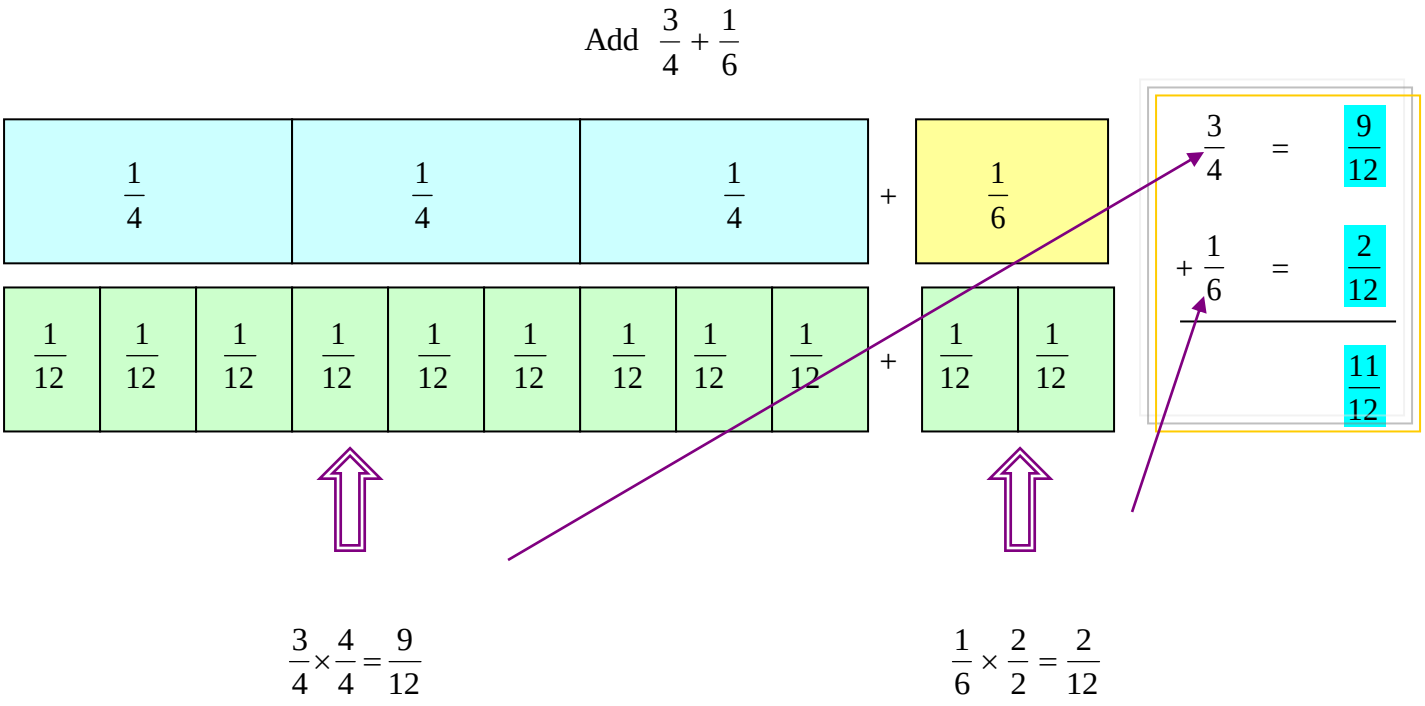
Adding Fractions with Unlike Denominators Using Fraction Bars

Study the two addition problems below. To add fractions with unlike denominators, express the fractions into equivalent fractions with the same denominator.

Add $\frac{1}{4} + \frac{1}{2}$



Add $\frac{3}{4} + \frac{1}{6}$



Adding Fractions with Unlike Denominators

Find $\frac{3}{5} + \frac{7}{10}$

Express each fraction into the same denominator by finding the LCD, least common denominator. In this problem 10 is the LCD.

$\frac{3}{5} \times \frac{2}{2} = \frac{6}{10}$ or say 5 divides into 10, 2 times, $3 \times 2 = 6$.

$$\begin{array}{r} \frac{3}{5} = \frac{6}{10} \\ +\ \frac{7}{10} = \frac{7}{10} \\ \hline \frac{13}{10} = 1\frac{3}{10} \end{array}$$

$\frac{13}{10} = \frac{10}{10} + \frac{3}{10}$ or

$$10\overline{)13}\ \begin{array}{l} 1 \\ \underline{10} \\ 3 \end{array}$$

$= 1\frac{3}{10}$