

Fractions and mixed numbers are often used to make measurements. Chefs add and multiply fractions and mixed numbers to determine how much of each ingredient to use. Carpenters subtract and divide fractions and mixed numbers as they cut lumber.

To add fractions and mixed numbers, the denominators must be the same. If denominators are not the same, first write equivalent fractions with like denominators. Add the numerators while keeping the denominator the same. Regroup to simplify if possible.

EXAMPLE 1

Melanie needs $\frac{3}{4}$ cup of strawberries and $\frac{1}{3}$ cup of blueberries for a smoothie recipe. How many cups of berries does she need in all?

Step 1: Use the least common denominator (LCD) of 12 to write an equivalent fraction for $\frac{3}{4}$ and $\frac{1}{3}$.

$$\frac{3}{4} : \frac{3}{4} * \frac{3}{3} = \frac{9}{12}$$

$$\frac{1}{3} : \frac{1}{3} * \frac{4}{4} = \frac{4}{12}$$

Step 2: Rewrite the addition problem using the fractions with like denominators. $\frac{9}{12} + \frac{4}{12} =$

Step 3: Add the numerators and convert the improper fraction to a mixed number. $\frac{13}{12} = 1\frac{1}{12}$

Solution: Melanie needs $1\frac{1}{12}$ cups of berries for her recipe.

EXAMPLE 2

Mrs. Perkins bought $5\frac{7}{8}$ pounds of apples and $4\frac{1}{2}$ pounds of bananas. How many pounds of fruit did Mrs. Perkins buy altogether?

Step 1: Use the LCD to write equivalent fractions with like denominators.

Step 2: Rewrite the addition problem using the fractions with like denominators.

Step 3: Add the numerators and convert the improper fraction to a mixed number.

EXAMPLE 3

Allen has $4\frac{2}{3}$ yards of wire. He uses $2\frac{3}{4}$ yards of wire for a project. How many yards of wire does he have left?

Step 1: Use the LCD to write equivalent fractions with like denominators.

Step 2: Rewrite the addition problem using the fractions with like denominators.

Step 3: Add the numerators and convert the improper fraction to a mixed number.

EXAMPLE 4

One batch of chocolate chip cookies calls for $\frac{2}{3}$ teaspoon of salt. How many teaspoons of salt would Monique need for $4\frac{1}{2}$ batches of cookies?

EXAMPLE 5

Raul is cutting a board that measures $12\frac{3}{4}$ inches into pieces that are $2\frac{1}{8}$ inches long. How many pieces will Raul have when he finishes?