

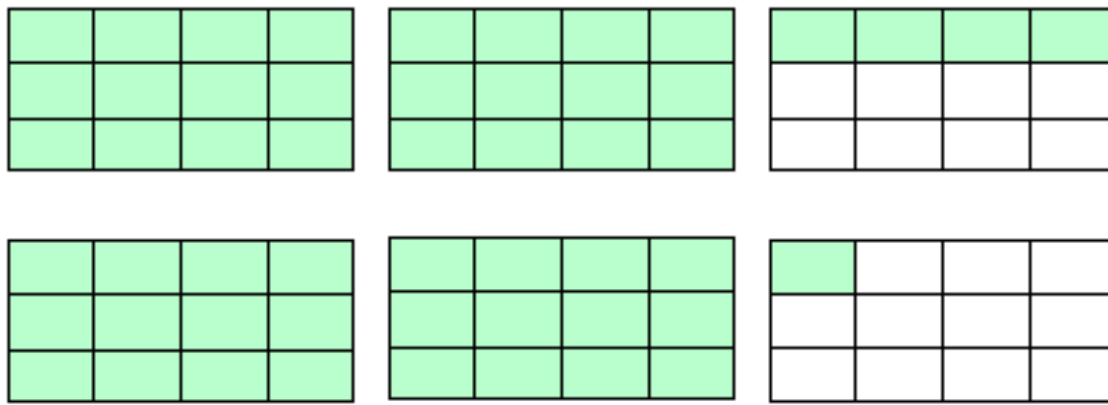
4.NF.B.3 Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$. For example,

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

c. Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction and/or by using properties of operations and the relationship between addition and subtraction.

d. Solve contextual problems involving addition and subtraction of fractions referring to the same whole and having like denominators.

Study the image.



What is the sum of $2\frac{4}{12} + 2\frac{1}{12}$?

a. $2\frac{5}{12}$

b. $2\frac{5}{24}$

c. $4\frac{5}{12}$

d. $4\frac{5}{24}$

Progression: Addition of mixed numbers with like denominators using a visual representation.

Find the sum.

$$6\frac{1}{8} + 2\frac{3}{8}$$

a. $8\frac{2}{8}$

b. $4\frac{2}{8}$

c. $8\frac{4}{8}$

d. $4\frac{4}{8}$

Progression: Addition of mixed numbers with like denominators without the use of a visual representation.

Natarsha put $5\frac{3}{4}$ bags of apples in her car. $1\frac{1}{4}$ of the apples rotted.
How many of the apples were still good?

a. $6\frac{4}{4}$

b. $6\frac{2}{4}$

c. $4\frac{2}{4}$

d. $4\frac{4}{4}$

Progression: Subtraction of mixed numbers with like denominators in contextual situation involving take apart with a missing addend.

Mr. Jennings took $\frac{3}{10}$ of the 4th graders on a field trip.

How many of the 4th graders did not go on the field trip?

a. $\frac{3}{10}$

b. $\frac{7}{10}$

c. $\frac{5}{10}$

d. $\frac{10}{10}$

Progression: Subtraction of fraction with like denominators in a contextual situation with understanding of the whole.

4.NF.B.4 Apply and extend previous understandings of multiplication as repeated addition to multiply a whole number by a fraction.

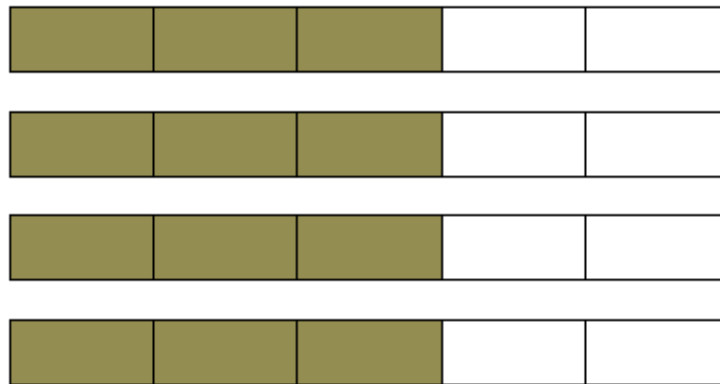
a. Understand a fraction $\frac{a}{b}$ as a multiple of $\frac{1}{b}$. For example, use a visual fraction model to represent $\frac{5}{4}$ as the product $5 \times \frac{1}{4}$, recording the conclusion by the equation $\frac{5}{4} = 5 \times \frac{1}{4}$.

b. Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$ and use this understanding to multiply a whole number by a fraction. For example, use a visual fraction model to express $3 \times \frac{2}{5}$ as $6 \times \frac{1}{5}$, recognizing this product as $\frac{6}{5}$.

(In general, $n \times \frac{a}{b} = \frac{(n \times a)}{b} = (n \times a) \times \frac{1}{b}$.)

c. Solve contextual problems involving multiplication of a whole number by a fraction (e.g., by using visual fraction models and equations to represent the problem). For example, if each person at a party will eat $\frac{3}{8}$ of a pound of roast beef, and there will be 4 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

Which expression is represented by the image?



a. $4 \times \frac{3}{5}$

b. $4 + \frac{3}{5}$

c. $4 \times \frac{1}{5}$

d. $4 + \frac{1}{5}$

Progression: Extend understanding of multiplication as repeated addition to fractions.

Which expression is equivalent to $4 \times \frac{3}{8}$?

a. $4 \times \frac{8}{3}$

b. $4 \times \frac{1}{8}$

c. $12 \times \frac{8}{3}$

d. $12 \times \frac{1}{8}$

Progression: Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$.

Find the product.

$7 \times \frac{2}{3}$

a. $\frac{7}{3}$

b. $\frac{14}{3}$

c. $\frac{7}{21}$

d. $\frac{14}{21}$

Progression: Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$ and use this understanding to multiply a whole number by a fraction.

Damion runs $\frac{5}{12}$ mile every day. How many miles does Damion run in 10 days?

a. $\frac{50}{12}$

b. $\frac{15}{22}$

c. $\frac{15}{120}$

d. $\frac{50}{120}$

Progression: Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$ and use this understanding to multiply a whole number by a fraction in a contextual situation.