

Grade 5 - Multiplying Fractions and Mixed Numbers - Answer Key

Common Core 5.NF.B.4a, 5.NF.B.6 · maths-pdf.fr/en/

This answer key shows a full worked solution for each of the 20 problems. Each solution lists the improper fractions, the multiplication of numerators and denominators, the simplified result, and the final answer in bold. Use it to find which step caused an error.

Grade 5 · Common Core State Standards: **5.NF.B.4a, 5.NF.B.6**

Exercise 1 - Whole number times unit fraction

Write the whole number 4 as $\frac{4}{1}$.

Multiply the numerators and multiply the denominators: $\frac{4}{1} \times \frac{1}{5} = \frac{4 \times 1}{1 \times 5} = \frac{4}{5}$.

$$\frac{4}{5}$$

Exercise 2 - Whole number times a fraction

Write the whole number 3 as $\frac{3}{1}$.

Multiply the numerators and multiply the denominators: $\frac{3}{1} \times \frac{2}{7} = \frac{3 \times 2}{1 \times 7} = \frac{6}{7}$.

$$\frac{6}{7}$$

Exercise 3 - Improper product

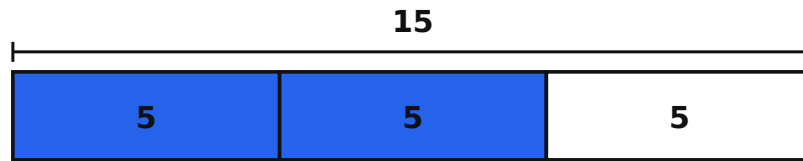
Write the whole number 5 as $\frac{5}{1}$.

Multiply the numerators and multiply the denominators: $\frac{5}{1} \times \frac{3}{4} = \frac{5 \times 3}{1 \times 4} = \frac{15}{4}$.

Write as a mixed number: $\frac{15}{4} = 3\frac{3}{4}$.

$$3\frac{3}{4}$$

Exercise 4 - Fraction of a whole number



Each part is 5. Two parts make 10.

Split 15 into 3 equal parts: $15 \div 3 = 5$. Take 2 parts: $2 \times 5 = 10$.

Check: $\frac{2}{3} \times 15 = \frac{30}{3} = 10$.

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Exercise 5 - Three fourths of 20

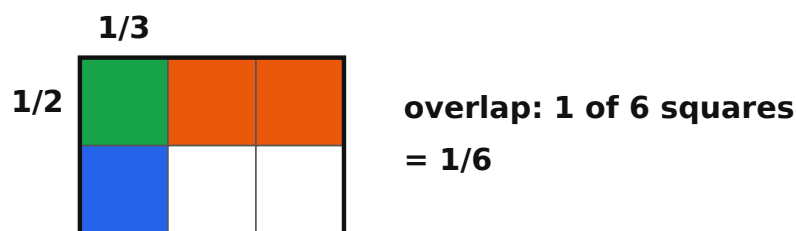
Write the whole number 20 as $\frac{20}{1}$.

Multiply the numerators and multiply the denominators: $\frac{3}{4} \times \frac{20}{1} = \frac{3 \times 20}{4 \times 1} = \frac{60}{4}$.

Simplify: $\frac{60}{4} = 15$.

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Exercise 6 - Half of a third



The overlap is 1 of 6 squares.

Multiply the numerators and multiply the denominators: $\frac{1}{2} \times \frac{1}{3} = \frac{1 \times 1}{2 \times 3} = \frac{1}{6}$.

$\frac{1}{6}$

Exercise 7 - Simplify the product

Multiply the numerators and multiply the denominators: $\frac{2}{3} \times \frac{3}{5} = \frac{2 \times 3}{3 \times 5} = \frac{6}{15}$.

Simplify: $\frac{6}{15} = \frac{2}{5}$.

$$\frac{2}{5}$$

Exercise 8 - Product that simplifies to a unit fraction

Multiply the numerators and multiply the denominators: $\frac{3}{4} \times \frac{4}{9} = \frac{3 \times 4}{4 \times 9} = \frac{12}{36}$.

Simplify: $\frac{12}{36} = \frac{1}{3}$.

$$\frac{1}{3}$$

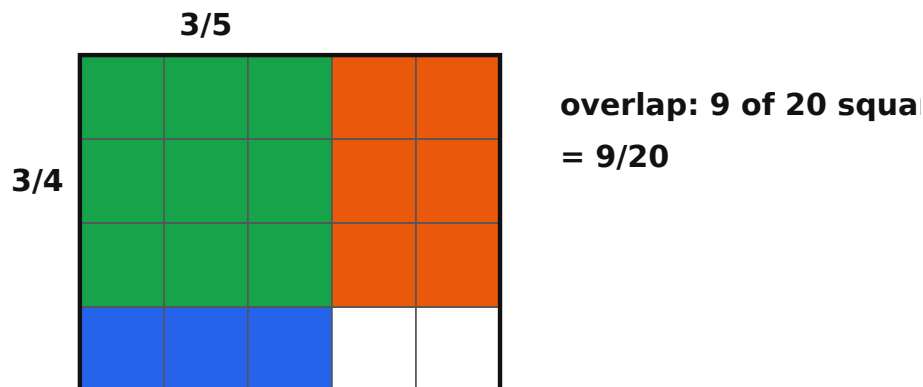
Exercise 9 - Larger numerators

Multiply the numerators and multiply the denominators: $\frac{5}{6} \times \frac{3}{10} = \frac{5 \times 3}{6 \times 10} = \frac{15}{60}$.

Simplify: $\frac{15}{60} = \frac{1}{4}$.

$$\frac{1}{4}$$

Exercise 10 - Product from a model



The overlap has 9 squares out of 20.

The width has 3 of 5 columns shaded and the height has 3 of 4 rows shaded.

$$\frac{3}{5} \times \frac{3}{4} = \frac{9}{20}$$

$$\frac{9}{20}$$

Exercise 11 - Mixed number times whole

Write the mixed number as improper fraction: $2\frac{1}{2} = \frac{5}{2}$.

Write the whole number 4 as $\frac{4}{1}$.

Multiply the numerators and multiply the denominators: $\frac{5}{2} \times \frac{4}{1} = \frac{5 \times 4}{2 \times 1} = \frac{20}{2}$.

Simplify: $\frac{20}{2} = 10$.

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Exercise 12 - Mixed number times fraction

Write the mixed number as improper fraction: $1\frac{1}{3} = \frac{4}{3}$.

Multiply the numerators and multiply the denominators: $\frac{4}{3} \times \frac{3}{4} = \frac{4 \times 3}{3 \times 4} = \frac{12}{12}$.

Simplify: $\frac{12}{12} = 1$.

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Exercise 13 - Two mixed numbers

Write the mixed numbers as improper fractions: $2\frac{1}{4} = \frac{9}{4}$ and $1\frac{1}{3} = \frac{4}{3}$.

Multiply the numerators and multiply the denominators: $\frac{9}{4} \times \frac{4}{3} = \frac{9 \times 4}{4 \times 3} = \frac{36}{12}$.

Simplify: $\frac{36}{12} = 3$.

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Exercise 14 - Larger mixed numbers

Write the mixed numbers as improper fractions: $3\frac{1}{2} = \frac{7}{2}$ and $2\frac{2}{5} = \frac{12}{5}$.

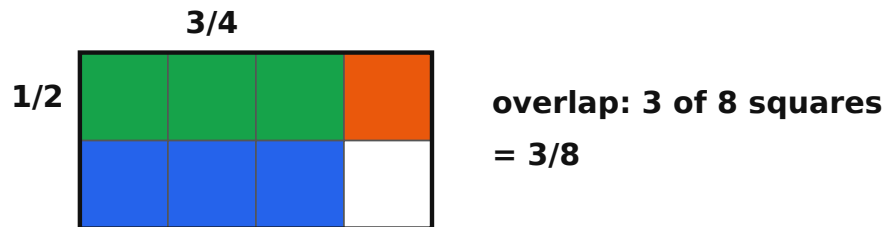
Multiply the numerators and multiply the denominators: $\frac{7}{2} \times \frac{12}{5} = \frac{7 \times 12}{2 \times 5} = \frac{84}{10}$.

Simplify: $\frac{84}{10} = \frac{42}{5}$.

Write as a mixed number: $\frac{42}{5} = 8\frac{2}{5}$.

$$8\frac{2}{5}$$

Exercise 15 - Half a recipe



The overlap is 3 of 8 squares.

Multiply the numerators and multiply the denominators: $\frac{1}{2} \times \frac{3}{4} = \frac{1 \times 3}{2 \times 4} = \frac{3}{8}$.

$$\frac{3}{8}$$

Maya uses $\frac{3}{8}$ cup of sugar.

Exercise 16 - Water jugs

Write the whole number 6 as $\frac{6}{1}$.

Multiply the numerators and multiply the denominators: $\frac{6}{1} \times \frac{3}{4} = \frac{6 \times 3}{1 \times 4} = \frac{18}{4}$.

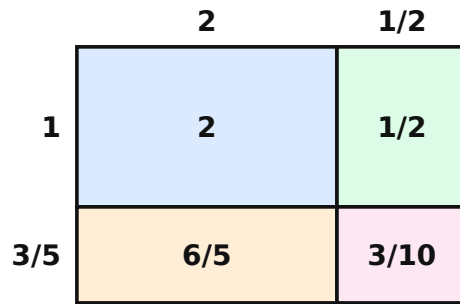
Simplify: $\frac{18}{4} = \frac{9}{2}$.

Write as a mixed number: $\frac{9}{2} = 4\frac{1}{2}$.

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

The jugs hold $4\frac{1}{2}$ gallons.

Exercise 17 - Garden bed area



The four areas add up to 4 square feet.

Area = length times width.

Write the mixed numbers as improper fractions: $2\frac{1}{2} = \frac{5}{2}$ and $1\frac{3}{5} = \frac{8}{5}$.

Multiply the numerators and multiply the denominators: $\frac{5}{2} \times \frac{8}{5} = \frac{5 \times 8}{2 \times 5} = \frac{40}{10}$.

Simplify: $\frac{40}{10} = 4$.

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The area is 4 square feet.

Exercise 18 - Pizza left over

Fraction eaten:

Multiply the numerators and multiply the denominators: $\frac{2}{5} \times \frac{5}{6} = \frac{2 \times 5}{5 \times 6} = \frac{10}{30}$.

Simplify: $\frac{10}{30} = \frac{1}{3}$.

$\frac{1}{3}$

Fraction still left: $\frac{5}{6} - \frac{1}{3} = \frac{5}{6} - \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$.

Ethan eats $\frac{1}{3}$ of the pizza, and $\frac{1}{2}$ of the pizza is still left.

Exercise 19 - Peaches at the market

Write the price as a mixed number: \$2.50 is $2\frac{1}{2}$ dollars.

Write the mixed numbers as improper fractions: $3\frac{1}{2} = \frac{7}{2}$ and $2\frac{1}{2} = \frac{5}{2}$.

Multiply the numerators and multiply the denominators: $\frac{7}{2} \times \frac{5}{2} = \frac{7 \times 5}{2 \times 2} = \frac{35}{4}$.

Write as a mixed number: $\frac{35}{4} = 8\frac{3}{4}$.

$$8\frac{3}{4}$$

$8\frac{3}{4}$ dollars is \$8.75.

Priya pays \$8.75.

Exercise 20 - Raisins for the team

Cups needed:

Write the mixed numbers as improper fractions: $1\frac{2}{3} = \frac{5}{3}$ and $2\frac{1}{2} = \frac{5}{2}$.

Multiply the numerators and multiply the denominators: $\frac{5}{3} \times \frac{5}{2} = \frac{5 \times 5}{3 \times 2} = \frac{25}{6}$.

Write as a mixed number: $\frac{25}{6} = 4\frac{1}{6}$.

$$4\frac{1}{6}$$

Cost: $\frac{25}{6} \times \frac{3}{2} = \frac{75}{12} = 6\frac{3}{12} = 6\frac{1}{4}$, which is \$6.25.

Diego needs $4\frac{1}{6}$ cups of raisins, and they cost \$6.25.