

Grade 5 - Multiplying Fractions and Mixed Numbers - Test Answer Key

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

This answer key gives worked solutions and a scoring guide for each of the 9 test questions, worth 20 points in all. Use the scoring notes to award partial credit when a student multiplies correctly but forgets to simplify.

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

Question 1 - Whole number and fraction [2 pts]

(a)

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

Multiply the numerators and multiply the denominators: $\frac{6}{1} \times \frac{2}{9} = \frac{6 \times 2}{1 \times 9} = \frac{12}{9}$.

Simplify: $\frac{12}{9} = \frac{4}{3}$.

Write as a mixed number: $\frac{4}{3} = 1\frac{1}{3}$.

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

(b) $\frac{3}{5} \times 15 = \frac{45}{5} = 9 : \mathbf{9}$.

Scoring: 1 point for each correct answer in simplest form.

Question 2 - Product of two fractions [2 pts]

(a)

Multiply the numerators and multiply the denominators: $\frac{3}{8} \times \frac{2}{3} = \frac{3 \times 2}{8 \times 3} = \frac{6}{24}$.

Simplify: $\frac{6}{24} = \frac{1}{4}$.

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

(b)

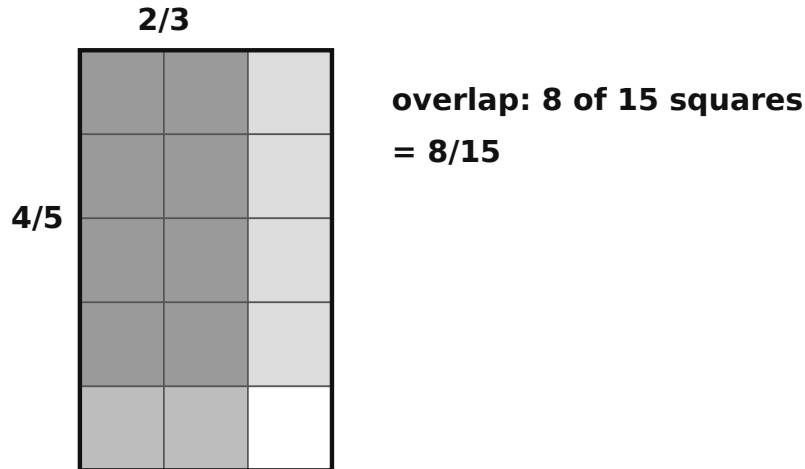
Multiply the numerators and multiply the denominators: $\frac{5}{6} \times \frac{9}{10} = \frac{5 \times 9}{6 \times 10} = \frac{45}{60}$.

Simplify: $\frac{45}{60} = \frac{3}{4}$.

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

Scoring: 1 point for each correct product in simplest form.

Question 3 - Read the model [2 pts]



Overlap: 8 of 15 squares.

(a) $\frac{2}{3} \times \frac{4}{5}$.

(b) $\frac{2 \times 4}{3 \times 5} = \frac{8}{15}$.

Scoring: 1 point for the sentence (either order); 1 point for the product.

Question 4 - Mixed number products [3 pts]

(a)

Write the mixed numbers as improper fractions: $1\frac{1}{2} = \frac{3}{2}$ and $3\frac{1}{3} = \frac{10}{3}$.

Multiply the numerators and multiply the denominators: $\frac{3}{2} \times \frac{10}{3} = \frac{3 \times 10}{2 \times 3} = \frac{30}{6}$.

Simplify: $\frac{30}{6} = 5$.

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(b)

Write the mixed numbers as improper fractions: $2\frac{2}{3} = \frac{8}{3}$ and $1\frac{3}{4} = \frac{7}{4}$.

Multiply the numerators and multiply the denominators: $\frac{8}{3} \times \frac{7}{4} = \frac{8 \times 7}{3 \times 4} = \frac{56}{12}$.

Simplify: $\frac{56}{12} = \frac{14}{3}$.

Write as a mixed number: $\frac{14}{3} = 4\frac{2}{3}$.

$$4\frac{2}{3}$$

Scoring: (a) 1 point. (b) 1 point for correct improper fractions, 1 point for the correct product as a mixed number.

Question 5 - Is it reasonable? [2 pts]

(a) Multiplying by $\frac{3}{4}$, which is less than 1, makes the product less than $4\frac{1}{2}$. But $6\frac{3}{4}$ is greater than $4\frac{1}{2}$.

(b)

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

Multiply the numerators and multiply the denominators: $\frac{9}{2} \times \frac{3}{4} = \frac{9 \times 3}{2 \times 4} = \frac{27}{8}$.

Write as a mixed number: $\frac{27}{8} = 3\frac{3}{8}$.

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

Scoring: 1 point for a valid explanation; 1 point for the correct product.

Question 6 - Garden rectangles [2 pts]

3/4 ft

1 7/8 sq ft

2 1/2 ft

Area = $15/8 = 1\frac{7}{8}$ sq ft.

(a) $\frac{5}{2} \times \frac{3}{4} = \frac{15}{8} = 1\frac{7}{8}$ **square feet.**

(b)

Write the mixed numbers as improper fractions: $3\frac{1}{3} = \frac{10}{3}$ and $2\frac{1}{4} = \frac{9}{4}$.

Multiply the numerators and multiply the denominators: $\frac{10}{3} \times \frac{9}{4} = \frac{10 \times 9}{3 \times 4} = \frac{90}{12}$.

Simplify: $\frac{90}{12} = \frac{15}{2}$.

Write as a mixed number: $\frac{15}{2} = 7\frac{1}{2}$.

$7\frac{1}{2}$

The second bed has an area of $7\frac{1}{2}$ square feet.

Scoring: 1 point for each correct area with units.

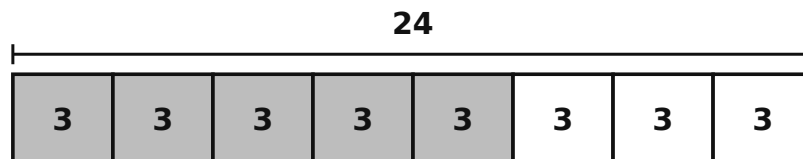
Question 7 - Recipe amounts [2 pts]

(a) $\frac{9}{4} \times \frac{1}{3} = \frac{9}{12} = \frac{3}{4}$: $\frac{3}{4}$ cup.

(b) $\frac{9}{4} \times \frac{5}{2} = \frac{45}{8} = 5\frac{5}{8}$: $5\frac{5}{8}$ cups.

Scoring: 1 point for each correct answer with units.

Question 8 - Bus riders [2 pts]



Each group has 3 students; 5 groups ride the bus.

(a) $\frac{5}{8} \times 24 = \frac{120}{8} = 15$: **15 students.**

(b) $\frac{2}{5} \times 15 = \frac{30}{5} = 6$: **6 students.**

Scoring: 1 point for each correct answer.

Question 9 - Baseball cards [3 pts]

(a) $\frac{1}{3} \times 36 = 12$: **12 cards.**

(b) After the brother: $36 - 12 = 24$. $\frac{1}{4} \times 24 = 6$: **6 cards.**

(c) $24 - 6 = 18$: **18 cards.**

Scoring: 1 point for each correct answer.

Total
20 points