

Grade 6 · Dividing Fractions · Worksheet

Answer Key

Common Core 6.NS.A.1 · mathovore.fr

This answer key shows a full worked solution for each of the 20 dividing fractions problems, with the reciprocal step and the simplified result. Compare your work with the bold final answers, and check each quotient by multiplying.

Grade 6 Common Core: 6.NS.A.1

Problem 1: Halves and fourths

Multiply by the reciprocal: $\frac{1}{2} \times 4 = 2$.

Check: two fourths make one half.

2.



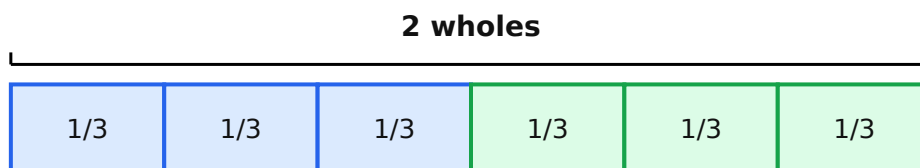
2 fourths fill one half.

Problem 2: Thirds in two wholes

$2 \div \frac{1}{3} = 2 \times 3 = 6$.

Check: each whole has 3 thirds, so 2 wholes have 6 thirds.

6.



6 thirds make 2 wholes.

Problem 3: Whole number by a fraction

$3 \div \frac{1}{2} = 3 \times 2 = 6$.

Check: each whole has 2 halves, so 3 wholes have 6 halves.

6.

$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
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6 halves make 3 wholes.

Problem 4: Write reciprocals

Two numbers are reciprocals when their product is 1. Flip the fraction, write a whole number as a fraction over 1, and change a mixed number to an improper fraction first.

- a. $\frac{3}{7} \times \frac{7}{3} = 1$: $\frac{7}{3}$
- b. $5 = \frac{5}{1}$: $\frac{1}{5}$
- c. $\frac{1}{9} \times 9 = 1$: 9
- d. $2\frac{1}{2} = \frac{5}{2}$: $\frac{2}{5}$

Problem 5: Fraction by a whole number

Dividing by 2 is multiplying by $\frac{1}{2}$: $\frac{4}{5} \times \frac{1}{2} = \frac{4}{10} = \frac{2}{5}$.

$\frac{2}{5}$.

Problem 6: Fraction split equally

Dividing by a whole number is the same as multiplying by its reciprocal.

- a. $\frac{6}{7} \times \frac{1}{2} = \frac{6}{14} = \frac{3}{7}$: $\frac{3}{7}$
- b. $\frac{9}{10} \times \frac{1}{3} = \frac{9}{30} = \frac{3}{10}$: $\frac{3}{10}$
- c. $\frac{5}{8} \times \frac{1}{5} = \frac{5}{40} = \frac{1}{8}$: $\frac{1}{8}$
- d. $\frac{4}{9} \times \frac{1}{6} = \frac{4}{54} = \frac{2}{27}$: $\frac{2}{27}$

Problem 7: Whole numbers by fractions

- a. $6 \times \frac{4}{3} = \frac{24}{3} = 8$: 8
- b. $10 \times \frac{5}{2} = \frac{50}{2} = 25$: 25
- c. $4 \times \frac{8}{3} = \frac{32}{3} = 10\frac{2}{3}$: $10\frac{2}{3}$
- d. Change $1\frac{1}{2}$ to $\frac{3}{2}$. $9 \times \frac{2}{3} = \frac{18}{3} = 6$: 6

Problem 8: Fourths and eighths

$$\frac{7}{8} \times 4 = \frac{28}{8} = \frac{7}{2}.$$

$$\frac{7}{2} = 3\frac{1}{2}.$$

$$3\frac{1}{2}.$$

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
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$\frac{7}{8}$ holds $3\frac{1}{2}$ pieces of $\frac{1}{4}$.

Problem 9: Unlike denominators

- a. $\frac{3}{4} \times \frac{8}{3} = \frac{24}{12} = 2 : 2$
- b. $\frac{7}{10} \times 5 = \frac{35}{10} = \frac{7}{2} = 3\frac{1}{2} : 3\frac{1}{2}$
- c. $\frac{5}{9} \times \frac{6}{5} = \frac{30}{45} = \frac{2}{3} : \frac{2}{3}$
- d. $\frac{8}{15} \times \frac{5}{4} = \frac{40}{60} = \frac{2}{3} : \frac{2}{3}$

Problem 10: Dividing two fractions

$$\frac{5}{6} \times \frac{3}{2} = \frac{15}{12} = \frac{5}{4}.$$

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

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

Problem 11: Mixed number by a fraction

Change $1\frac{1}{2}$ to $\frac{3}{2}$.

$$\frac{3}{2} \times \frac{4}{3} = \frac{12}{6} = 2.$$

2.

Problem 12: Mixed number quotients

- a. $2\frac{1}{3} = \frac{7}{3}$. $\frac{7}{3} \times 6 = \frac{42}{3} = 14 : 14$
- b. $5\frac{1}{4} = \frac{21}{4}$ and $1\frac{3}{4} = \frac{7}{4}$. $\frac{21}{4} \times \frac{4}{7} = \frac{84}{28} = 3 : 3$
- c. $1\frac{1}{5} = \frac{6}{5}$. $\frac{6}{5} \times \frac{10}{3} = \frac{60}{15} = 4 : 4$
- d. $3\frac{1}{3} = \frac{10}{3}$ and $2\frac{1}{2} = \frac{5}{2}$. $\frac{10}{3} \times \frac{2}{5} = \frac{20}{15} = \frac{4}{3} = 1\frac{1}{3} : 1\frac{1}{3}$

Problem 13: Two mixed numbers

Change both: $2\frac{1}{4} = \frac{9}{4}$ and $1\frac{1}{2} = \frac{3}{2}$.

$$\frac{9}{4} \times \frac{2}{3} = \frac{18}{12} = \frac{3}{2}.$$

$$\frac{3}{2} = 1\frac{1}{2}.$$

$1\frac{1}{2}$.

Problem 14: Missing factor

When a product and one factor are known, divide the product by the known factor.

- a. $n = \frac{9}{10} \div \frac{3}{5} = \frac{9}{10} \times \frac{5}{3} = \frac{45}{30} = \frac{3}{2} = 1\frac{1}{2}$. Check: $\frac{3}{2} \times \frac{3}{5} = \frac{9}{10}$. $n = 1\frac{1}{2}$
b. $n = 3\frac{3}{4} \div 1\frac{1}{2} = \frac{15}{4} \times \frac{2}{3} = \frac{30}{12} = \frac{5}{2} = 2\frac{1}{2}$. Check: $\frac{5}{2} \times \frac{3}{2} = \frac{15}{4}$. $n = 2\frac{1}{2}$
c. $n = \frac{5}{12} \div \frac{5}{6} = \frac{5}{12} \times \frac{6}{5} = \frac{30}{60} = \frac{1}{2}$. Check: $\frac{5}{6} \times \frac{1}{2} = \frac{5}{12}$. $n = \frac{1}{2}$

Problem 15: Sharing pizza

Divide the pizza by 4: $\frac{2}{3} \div 4 = \frac{2}{3} \times \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$.

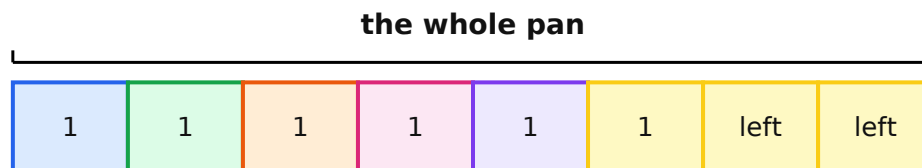
$\frac{1}{6}$ of the pizza.

Problem 16: Sharing lasagna

Divide the lasagna by 6: $\frac{3}{4} \div 6 = \frac{3}{4} \times \frac{1}{6} = \frac{3}{24} = \frac{1}{8}$.

Check: $6 \times \frac{1}{8} = \frac{6}{8} = \frac{3}{4}$.

$\frac{1}{8}$ of the pan.



Each of the 6 friends gets 1 slice, or $\frac{1}{8}$ of the pan.

Problem 17: Ribbon bows

Divide the ribbon by the length of one bow: $4\frac{1}{2} \div \frac{3}{4} = \frac{9}{2} \times \frac{4}{3} = \frac{36}{6} = 6$.

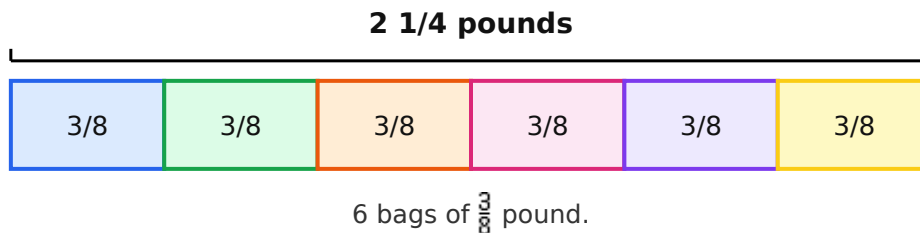
6 bows.

Problem 18: Almond bags

Divide the almonds by the amount in one bag: $2\frac{1}{4} \div \frac{3}{8} = \frac{9}{4} \times \frac{8}{3} = \frac{72}{12} = 6$.

Check: $6 \times \frac{3}{8} = \frac{18}{8} = 2\frac{1}{4}$.

6 bags.

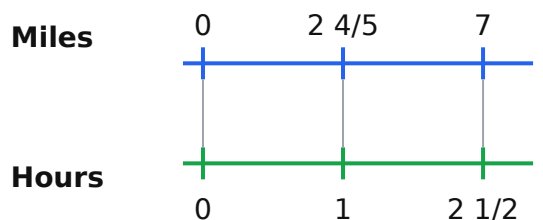


Problem 19: Walking rate

(a) Speed = distance $\div$ time: $3\frac{1}{2} \div 1\frac{1}{4} = \frac{7}{2} \times \frac{4}{5} = \frac{28}{10} = \frac{14}{5} = 2\frac{4}{5}$ miles per hour.

(b) Time = distance $\div$ speed: $7 \div \frac{14}{5} = 7 \times \frac{5}{14} = \frac{35}{14} = \frac{5}{2} = 2\frac{1}{2}$ hours.

(a) $2\frac{4}{5}$ mph. (b) $2\frac{1}{2}$ hours.



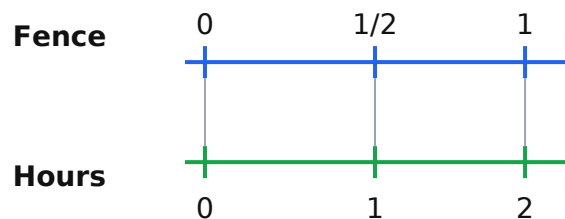
$2\frac{4}{5}$ miles per hour; 7 miles take $2\frac{1}{2}$ hours.

Problem 20: Painting a fence

a. Fence per hour = fence $\div$ time: $\frac{3}{4} \div 1\frac{1}{2} = \frac{3}{4} \times \frac{2}{3} = \frac{6}{12} = \frac{1}{2}$. **$\frac{1}{2}$ of the fence per hour.**

b. Hours = whole fence $\div$ rate: $1 \div \frac{1}{2} = 1 \times 2 = 2$. **2 hours.**

c. Fence = rate $\times$ time: $\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$. **$\frac{3}{8}$ of the fence.**



Priya paints $\frac{1}{2}$ of the fence each hour.