

Grade 5 - Dividing Unit Fractions and Whole Numbers - Answer Key

Common Core 5.NF.B.7a, 5.NF.B.7b, 5.NF.B.7c · maths-pdf.fr/en/

Every solution below shows the picture or the multiplication step, then a check. Compare your work with each answer, and fix any problem where your quotient does not multiply back to the dividend.

Grade 5 · Common Core State Standards: **5.NF.B.7a**, **5.NF.B.7b**, **5.NF.B.7c**

Exercise 1 - Half divided by 3

Cut the unit fraction $\frac{1}{2}$ into 3 equal pieces. The denominator becomes $2 \times 3 = 6$.

Check: $\frac{1}{6} \times 3 = \frac{3}{6} = \frac{1}{2}$

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

Exercise 2 - Fourth divided by 2

Cut the unit fraction $\frac{1}{4}$ into 2 equal pieces. The denominator becomes $4 \times 2 = 8$.

Check: $\frac{1}{8} \times 2 = \frac{2}{8} = \frac{1}{4}$

$$\frac{1}{4} \div 2 = \frac{1}{8}$$

Exercise 3 - Third divided by 5

Cut the unit fraction $\frac{1}{3}$ into 5 equal pieces. The denominator becomes $3 \times 5 = 15$.

Check: $\frac{1}{15} \times 5 = \frac{5}{15} = \frac{1}{3}$

$$\frac{1}{3} \div 5 = \frac{1}{15}$$

Exercise 4 - Fifth divided by 4

Cut the unit fraction $\frac{1}{5}$ into 4 equal pieces. The denominator becomes $5 \times 4 = 20$.

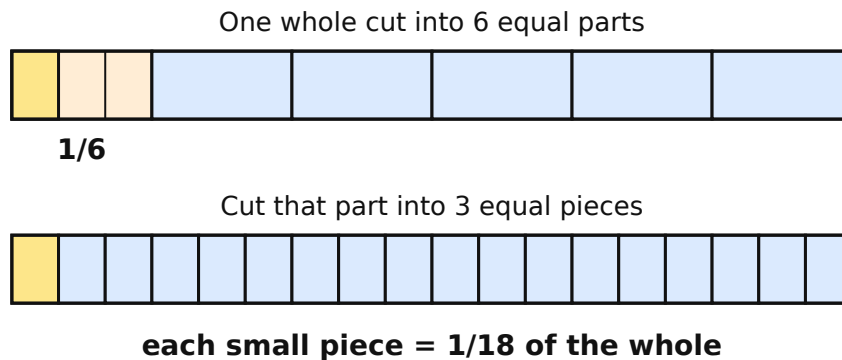
Check: $\frac{1}{20} \times 4 = \frac{4}{20} = \frac{1}{5}$

$\frac{1}{5} \div 4 = \frac{1}{20}$

Exercise 5 - Sixth divided by 3 with a model

Cut the unit fraction $\frac{1}{6}$ into 3 equal pieces. The denominator becomes $6 \times 3 = 18$.

Check: $\frac{1}{18} \times 3 = \frac{3}{18} = \frac{1}{6}$



Eighteen small pieces fit in the whole bar.

$\frac{1}{6} \div 3 = \frac{1}{18}$

Exercise 6 - Four wholes in halves

Each whole holds 2 pieces of size $\frac{1}{2}$. For 4 wholes, multiply: $4 \times 2 = 8$.

Check: $8 \times \frac{1}{2} = 4$

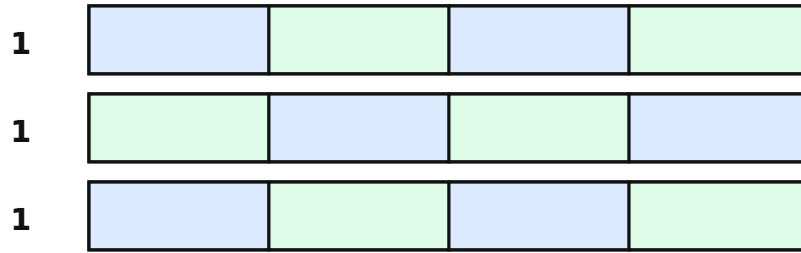
$4 \div \frac{1}{2} = 8$

Exercise 7 - Three wholes in fourths

Each whole holds 4 pieces of size $\frac{1}{4}$. For 3 wholes, multiply: $3 \times 4 = 12$.

Check: $12 \times \frac{1}{4} = 3$

$3 \div \frac{1}{4} = 12$



3 wholes x 4 pieces = 12 pieces of size 1/4

Count the parts: 12 fourths in 3 wholes.

Exercise 8 - Five wholes in thirds

Each whole holds 3 pieces of size $\frac{1}{3}$. For 5 wholes, multiply: $5 \times 3 = 15$.

Check: $15 \times \frac{1}{3} = 5$

$5 \div \frac{1}{3} = 15$

Exercise 9 - Two wholes in fifths

Each whole holds 5 pieces of size $\frac{1}{5}$. For 2 wholes, multiply: $2 \times 5 = 10$.

Check: $10 \times \frac{1}{5} = 2$

$2 \div \frac{1}{5} = 10$

Exercise 10 - Six wholes in sixths

Each whole holds 6 pieces of size $\frac{1}{6}$. For 6 wholes, multiply: $6 \times 6 = 36$.

Check: $36 \times \frac{1}{6} = 6$

$6 \div \frac{1}{6} = 36$

Exercise 11 - Check with multiplication

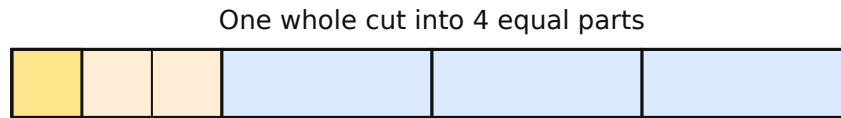
Multiply the denominator by 3: $8 \times 3 = 24$, so the quotient is $\frac{1}{24}$.

Check: $\frac{1}{24} \times 3 = \frac{3}{24} = \frac{1}{8}$.

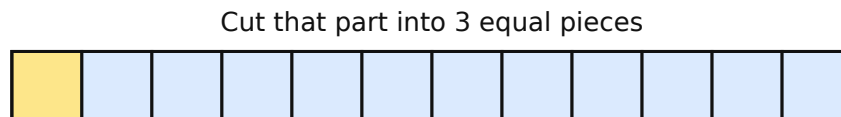
$$\frac{1}{8} \div 3 = \frac{1}{24}$$

Exercise 12 - Write the division sentence

The shaded fourth is cut into 3 equal pieces. The whole now has $4 \times 3 = 12$ equal pieces, so each piece is $\frac{1}{12}$.



$\frac{1}{4}$



each small piece = $\frac{1}{12}$ of the whole

Each small piece is one twelfth.

$$\frac{1}{4} \div 3 = \frac{1}{12}$$

Exercise 13 - Find the missing number

The quotient 28 is 7×4 , so the unit fraction is $\frac{1}{4}$. Check: $7 \div \frac{1}{4} = 7 \times 4 = 28$.

$7 \div \frac{1}{4} = 28$, so the missing number is 4.

Exercise 14 - Compare two quotients

$$\frac{1}{4} \div 2 = \frac{1}{8} \text{ and } \frac{1}{4} \div 3 = \frac{1}{12}.$$

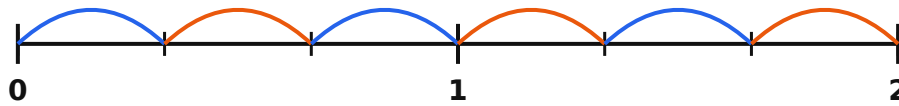
Eighths are bigger pieces than twelfths, so $\frac{1}{8} > \frac{1}{12}$.

$$\frac{1}{4} \div 2 > \frac{1}{4} \div 3$$

Exercise 15 - Jumps on a number line

Make jumps of $\frac{1}{3}$ from 0 to 2. Each whole has 3 jumps, so 2 wholes have $2 \times 3 = 6$ jumps.

6 jumps of $\frac{1}{3}$ make 2



Six jumps reach 2.

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

Exercise 16 - Trail mix for four

Divide $\frac{1}{2} \div 4$: $2 \times 4 = 8$, so each friend gets $\frac{1}{8}$ pound.

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

$\frac{1}{8}$ pound

Exercise 17 - Ribbon pieces

$$5 \div \frac{1}{4} = 5 \times 4 = 20.$$

Check: $20 \times \frac{1}{4} = \frac{20}{4} = 5$ yards.

20 pieces

Exercise 18 - Brownie pan

$$\frac{1}{3} \div 6 = \frac{1}{3 \times 6} = \frac{1}{18}.$$

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

$\frac{1}{18}$ of the pan

Exercise 19 - Laps around the track

(a) $3 \div \frac{1}{8} = 3 \times 8 = 24$ laps.

(b) $24 - 18 = 6$ laps.

(a) 24 laps; (b) 6 laps

Exercise 20 - Paint for a sign

Each jar: $\frac{1}{2} \div 3 = \frac{1}{6}$ gallon.

Two jars: $2 \times \frac{1}{6} = \frac{2}{6} = \frac{1}{3}$ gallon.

$\frac{1}{3}$ gallon