Fraction as Sum of Unit Fractions

Apply the skill to decisions and designs

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

A unit fraction has numerator 1. Two fifths means two copies of one fifth: $\frac{1}{5}+\frac{1}{5}=\frac{2}{5}$. Count the pieces for the numerator and keep their size in the denominator.

Worked example

Write $\frac{4}{7}$ as a sum using only unit fractions.

1. One equal part is $\frac{1}{7}$.

2. Count 4 such parts: $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}=\frac{4}{7}$.

3. The numerator sum is $1+1+1+1=4$; the denominator remains 7.

Answer: $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}=\frac{4}{7}$.

Practice Problems

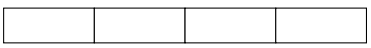
Show your thinking.

1. Design a $\frac{4}{5}$-m strip using only $\frac{1}{5}$-m pieces. Write the sum.

2. Each scoop is $\frac{1}{8}$ cup. A plan lists $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{4}{8}$ cup. Repair the plan.

3. A necklace uses $\frac{5}{6}$ m of cord in $\frac{1}{6}$-m pieces. How many equal pieces are needed?

4. Shade $\frac{3}{4}$ of the blank bar and write one unit-fraction term for each shaded part.



5. A full 1-m strip is made of $\frac{1}{4}$-m parts. Write its unit-fraction sum.

6. A child says $\frac{3}{5}$ is three copies of $\frac{1}{3}$. Explain and correct.

7. A path joins six $\frac{1}{7}$-km sections. Write the total as repeated addition.

8. Find the unit fraction if five copies sum to $\frac{5}{9}$. Then write the sum.

Answer Key

1. $(\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5})$ m $=\frac{4}{5}$ m.
2. Add a fourth $\frac{1}{8}$-cup scoop, or change the total to $\frac{3}{8}$ cup.
3. 5 pieces.
4. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=\frac{3}{4}$.
5. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=1$ m.
6. It is three copies of $\frac{1}{5}$.
7. $(\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7})$ km $=\frac{6}{7}$ km.
8. $\frac{1}{9}$; $\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}=\frac{5}{9}$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. One equal part is $\frac{1}{5}$ m.
2. Count 4 such parts: $(\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5})$ m $=\frac{4}{5}$ m.
3. The numerator sum is $1+1+1+1=4$; the denominator remains 5.

Problem 2

1. The three listed scoops give $1+1+1=3$ eighths.
2. The requested $\frac{4}{8}$ cup requires 4 scoops.
3. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{4}{8}$ repairs the plan.

Problem 3

1. Each term in the sum is $\frac{1}{6}$ m.
2. Five terms give $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}=\frac{5}{6}$ m.
3. The numerator count 5 gives 5 pieces.

Problem 4

1. One equal part is $\frac{1}{4}$.
2. Count 3 such parts: $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=\frac{3}{4}$.
3. The numerator sum is $1+1+1=3$; the denominator remains 4.

Problem 5

1. One meter contains 4 quarters.
2. The numerator sum is $1+1+1+1=4$.
3. $\frac{4}{4}=1$ m checks the full strip.

Problem 6

1. The denominator 5 names fifth-sized parts.
2. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=\frac{3}{5}$.
3. Three thirds would give $\frac{3}{3}=1$, not $\frac{3}{5}$.

Problem 7

1. One equal part is $\frac{1}{7}$ km.
2. Count 6 such parts: $(\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7})$ km $=\frac{6}{7}$ km.
3. The numerator sum is $1+1+1+1+1+1=6$; the denominator remains 7.

Problem 8

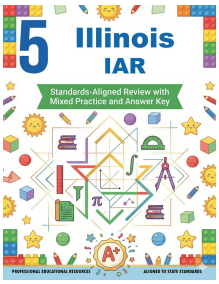
1. The denominator 9 says one piece is $\frac{1}{9}$.
2. The numerator 5 says there are five such pieces.
3. $5\times\frac{1}{9}=\frac{5}{9}$ checks the repeated sum.

TESTINAR

Keep Building Grade 4 Math Skills

Choose the practice book matched to your state assessment and turn worksheet practice into a complete test-prep plan.

All Grade 4 books



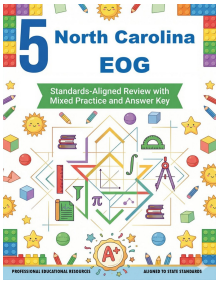
ILLINOIS IAR

5 Full-Length Math Practice Tests

Build Grade 4 accuracy, confidence, and test stamina with 5 printable practice tests.

Printable eBook • Instant PDF access

View eBook



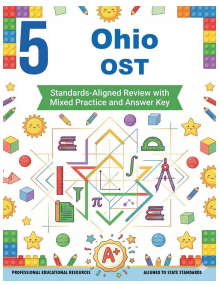
NORTH CAROLINA EOG

5 Full-Length Math Practice Tests

Build Grade 4 accuracy, confidence, and test stamina with 5 printable practice tests.

Printable eBook • Instant PDF access

View eBook



OHIO OST

5 Full-Length Math Practice Tests

Build Grade 4 accuracy, confidence, and test stamina with 5 printable practice tests.

Printable eBook • Instant PDF access

View eBook

Need a different state?
Testinar has Grade 4 math practice books for state assessments across the country.

TESTINAR.COM/GRADES/4