Equivalent Fractions

Spot mistakes, reason, and work backward

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

QUICK REVIEW

Multiply or divide the numerator and denominator by the same nonzero number. $\frac{2}{3} = \frac{2\times4}{3\times4} = \frac{8}{12}$. The piece size changes, not the amount of the whole.

Worked example

Write an equivalent fraction to $\frac{3}{5}$ using tenths.

1. Scale both counts by 2: $3 \times 2 = 6$ and $5 \times 2 = 10$.
2. Thus $\frac{3}{5} = \frac{6}{10}$; each old piece became 2 smaller pieces.
3. Check by division: $6 \div 2 = 3$ and $10 \div 2 = 5$.

Answer: $\frac{6}{10} = \frac{3}{5}$.

Practice Problems

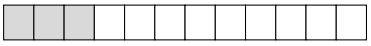
Show your thinking.

1. Regroup $\frac{6}{21}$ by dividing both counts by 3.

2. Find the missing shaded-piece count in $\frac{4}{5} = \frac{\square}{20}$.

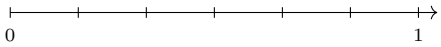
3. How many equal pieces must the whole have if $\frac{5}{6}$ is renamed $\frac{10}{\square}$?

4. A bar has 3 shaded parts out of 12. Regroup in threes and name its fraction.



5. A student simplifies $\frac{12}{18}$ to $\frac{2}{6}$. Fix the denominator.

6. Find the fraction in sixths that lies at the same point as $\frac{1}{2}$.



7. Is $\frac{9}{15}$ an equivalent name for $\frac{3}{5}$? Explain using equal-sized groups.

8. A patch covers $\frac{5}{8}$ of a quilt block. Give an equivalent fraction with denominator 24.

Answer Key

1. $\frac{2}{7}$.
2. 16; $\frac{16}{20} = \frac{4}{5}$.
3. 12; $\frac{10}{12} = \frac{5}{6}$.
4. $\frac{1}{4}$.
5. $\frac{2}{3}$.
6. $\frac{3}{6}$.
7. Yes.
8. $\frac{15}{24} = \frac{5}{8}$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Scale both counts by 3: $2 \times 3 = 6$ and $7 \times 3 = 21$.
2. Thus $\frac{2}{7} = \frac{6}{21}$; each old piece became 3 smaller pieces.
3. Check by division: $6 \div 3 = 2$ and $21 \div 3 = 7$.

Problem 2

1. Scale both counts by 4: $4 \times 4 = 16$ and $5 \times 4 = 20$.
2. Thus $\frac{4}{5} = \frac{16}{20}$; each old piece became 4 smaller pieces.
3. Check by division: $16 \div 4 = 4$ and $20 \div 4 = 5$.

Problem 3

1. Scale both counts by 2: $5 \times 2 = 10$ and $6 \times 2 = 12$.
2. Thus $\frac{5}{6} = \frac{10}{12}$; each old piece became 2 smaller pieces.
3. Check by division: $10 \div 2 = 5$ and $12 \div 2 = 6$.

Problem 4

1. Scale both counts by 3: $1 \times 3 = 3$ and $4 \times 3 = 12$.
2. Thus $\frac{1}{4} = \frac{3}{12}$; each old piece became 3 smaller pieces.
3. Check by division: $3 \div 3 = 1$ and $12 \div 3 = 4$.

Problem 5

1. The numerator was divided by 6: $12 \div 6 = 2$.
2. Divide the denominator by the same 6: $18 \div 6 = 3$.
3. $\frac{2}{6} = \frac{1}{3}$ is not equal to $\frac{12}{18} = \frac{2}{3}$.

Problem 6

1. The denominator grows from 2 to 6 by a factor of 3.
2. The numerator grows to $1 \times 3 = 3$.
3. $\frac{3}{6} = \frac{1}{2}$ names the midpoint.

Problem 7

1. Group 15 pieces into groups of 3: $15 \div 3 = 5$.
2. The 9 selected pieces form $9 \div 3 = 3$ groups.
3. The selected fraction is $\frac{3}{5}$, so $\frac{9}{15} = \frac{3}{5}$.

Problem 8

1. Scale both counts by 3: $5 \times 3 = 15$ and $8 \times 3 = 24$.
2. Thus $\frac{5}{8} = \frac{15}{24}$; each old piece became 3 smaller pieces.
3. Check by division: $15 \div 3 = 5$ and $24 \div 3 = 8$.

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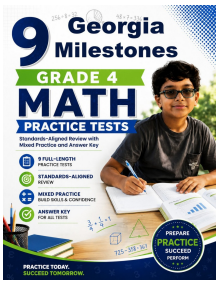

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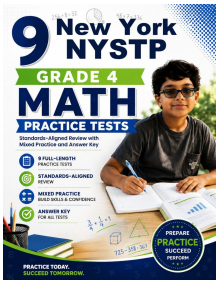

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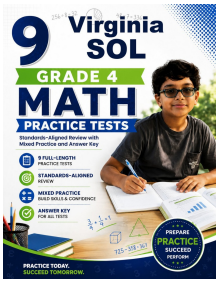

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