Equivalent Fractions

Explore ideas and representations

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. Write $\frac{1}{2}$ using eighths.

2. Complete $\frac{2}{5} = \frac{\square}{15}$.

3. Complete $\frac{3}{4} = \frac{9}{\square}$.

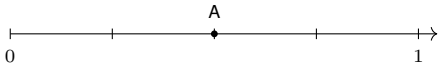
4. The bar shows $\frac{2}{3}$. Split each piece into two equal pieces. Name the new fraction.



5. Fix: $\frac{2}{5} = \frac{4}{7}$ because I added 2 to both numbers.

6. Give two equivalent names for $\frac{3}{4}$ other than $\frac{3}{4}$.

7. On the number line, point A is at $\frac{2}{4}$. Name its location in halves.



8. Two equal pizzas are cut into 6 and 12 slices. How many twelfth-slices match 4 sixth-slices?

Answer Key

1. $\frac{4}{8} = \frac{1}{2}$.
2. 6; $\frac{6}{15} = \frac{2}{5}$.
3. 12; $\frac{9}{12} = \frac{3}{4}$.
4. $\frac{4}{6} = \frac{2}{3}$.
5. $\frac{2}{5} = \frac{4}{10}$, not $\frac{4}{7}$.
6. $\frac{6}{8}$ and $\frac{9}{12}$.
7. $\frac{1}{2}$.
8. 8 slices.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Scale both counts by 4: $1 \times 4 = 4$ and $2 \times 4 = 8$.
2. Thus $\frac{1}{2} = \frac{4}{8}$; each old piece became 4 smaller pieces.
3. Check by division: $4 \div 4 = 1$ and $8 \div 4 = 2$.

Problem 2

1. Scale both counts by 3: $2 \times 3 = 6$ and $5 \times 3 = 15$.
2. Thus $\frac{2}{5} = \frac{6}{15}$; each old piece became 3 smaller pieces.
3. Check by division: $6 \div 3 = 2$ and $15 \div 3 = 5$.

Problem 3

1. Scale both counts by 3: $3 \times 3 = 9$ and $4 \times 3 = 12$.
2. Thus $\frac{3}{4} = \frac{9}{12}$; each old piece became 3 smaller pieces.
3. Check by division: $9 \div 3 = 3$ and $12 \div 3 = 4$.

Problem 4

1. Scale both counts by 2: $2 \times 2 = 4$ and $3 \times 2 = 6$.
2. Thus $\frac{2}{3} = \frac{4}{6}$; each old piece became 2 smaller pieces.
3. Check by division: $4 \div 2 = 2$ and $6 \div 2 = 3$.

Problem 5

1. Doubling the shaded count gives $2 \times 2 = 4$.
2. The whole must also double: $5 \times 2 = 10$.
3. Check: $2 \times 7 = 14$ but $5 \times 4 = 20$, so $\frac{2}{5} \neq \frac{4}{7}$.

Problem 6

1. Multiply both counts by 2: $\frac{3}{4} = \frac{6}{8}$.
2. Multiply both counts by 3: $\frac{3}{4} = \frac{9}{12}$.
3. $6 \div 2 = 3$, $8 \div 2 = 4$ and $9 \div 3 = 3$, $12 \div 3 = 4$ check both.

Problem 7

1. The 4 equal parts form 2 pairs.
2. A is 2 parts from zero, or 1 of those 2 pairs.
3. $\frac{2}{4} = \frac{2 \div 2}{4 \div 2} = \frac{1}{2}$.

Problem 8

1. Each sixth is 2 twelfths because $12 \div 6 = 2$.
2. $4 \times 2 = 8$ twelfth-slices.
3. $\frac{4}{6} = \frac{8}{12}$ checks the same amount.

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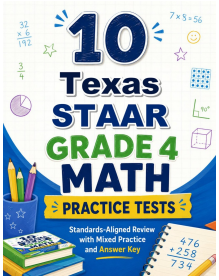

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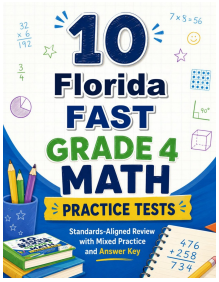

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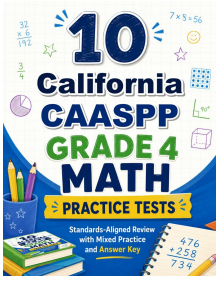

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