Equivalent Fractions as Same Size

Explore ideas and representations

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Same size means the same amount of an equal-size whole, or the same number-line point. $\frac{1}{5}$ and $\frac{2}{10}$ cover the same length of equal strips. But half of a long ribbon need not equal half of a short ribbon. Check the whole first.

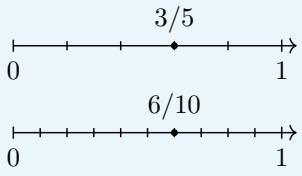
Worked example

Mark $\frac{3}{5}$ on the top line and $\frac{6}{10}$ on the bottom. Are they the same number?

1. 5-ths split into 2 equal smaller steps, making 10-ths.

2. The top endpoint after 3 steps matches the bottom endpoint after $3 \times 2 = 6$ steps.

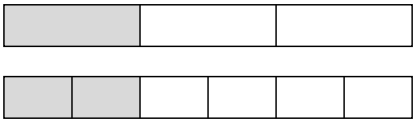
Answer: Yes; $\frac{3}{5} = \frac{6}{10}$.



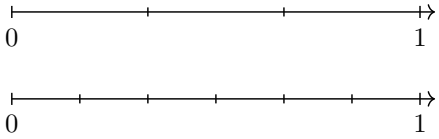
Practice Problems

Show your thinking.

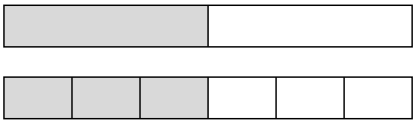
1. The strips are the same size. Name both shaded fractions and decide whether they are equivalent.



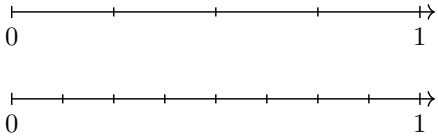
2. Mark $\frac{2}{3}$ on the top line and $\frac{4}{6}$ on the bottom. Are they the same number?



3. The strips are the same size. Name both shaded fractions and decide whether they are equivalent.



4. Mark $\frac{1}{4}$ on the top line and $\frac{2}{8}$ on the bottom. Are they the same number?



5. One same-length ribbon is colored $\frac{3}{4}$ red. Another is cut into 8 equal pieces. How many pieces must be colored to match?



6. $\frac{1}{2}$ of a 4-cm ribbon and $\frac{4}{8}$ of a 16-cm ribbon are cut off. Are the cut lengths equal?

Answer Key

1. $\frac{1}{3} = \frac{2}{6}$.
2. Yes; $\frac{2}{3} = \frac{4}{6}$.
3. $\frac{1}{2} = \frac{3}{6}$.
4. Yes; $\frac{1}{4} = \frac{2}{8}$.
5. 6 pieces; $\frac{6}{8}$ of the ribbon.
6. No; 2 cm and 8 cm.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Top: 1 of 3 equal pieces are shaded, or $\frac{1}{3}$. Bottom: 2 of 6, or $\frac{2}{6}$.

2. Each top piece splits into 2 bottom pieces: $1 \times 2 = 2$ and $3 \times 2 = 6$. The shaded lengths match.

Problem 2

1. 3-ths split into 2 equal smaller steps, making 6-ths.

2. The top endpoint after 2 steps matches the bottom endpoint after $2 \times 2 = 4$ steps.

Problem 3

1. Top: 1 of 2 equal pieces are shaded, or $\frac{1}{2}$. Bottom: 3 of 6, or $\frac{3}{6}$.

2. Each top piece splits into 3 bottom pieces: $1 \times 3 = 3$ and $2 \times 3 = 6$. The shaded lengths match.

Problem 4

1. 4-ths split into 2 equal smaller steps, making 8-ths.

2. The top endpoint after 1 steps matches the bottom endpoint after $1 \times 2 = 2$ steps.

Problem 5

1. Each of the first 4 parts becomes 2 smaller pieces because $4 \times 2 = 8$.

2. Color $3 \times 2 = 6$ of the smaller pieces to match $\frac{3}{4}$.

Problem 6

1. The first ribbon has 2 pieces of 2 cm; 1 pieces measure $1 \times 2 = 2$ cm.

2. The second has 8 pieces of 2 cm; 4 measure $4 \times 2 = 8$ cm. Equivalent fractions need equal wholes to give equal lengths.

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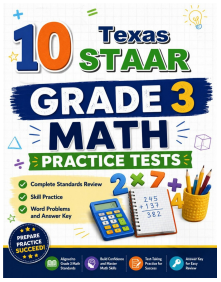

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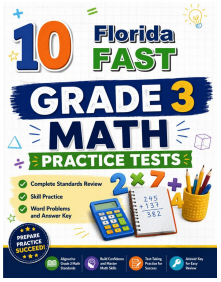

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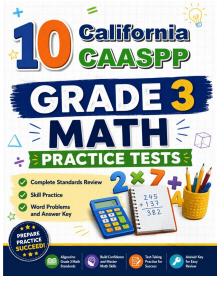

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