Equivalence of Fractions

Apply the skill to decisions and designs

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

QUICK REVIEW

Equivalent fractions name the same number. Split every fifth in two to see $\frac{1}{5} = \frac{2}{10}$. The amount shaded stays the same when the whole is the same size. On aligned number lines, equivalent fractions land at the same distance from 0.

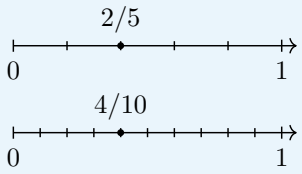
Worked example

Mark $\frac{2}{5}$ on the top line and $\frac{4}{10}$ 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 2 steps matches the bottom endpoint after $2 \times 2 = 4$ steps.

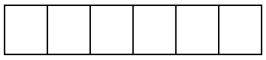
Answer: Yes; $\frac{2}{5} = \frac{4}{10}$.



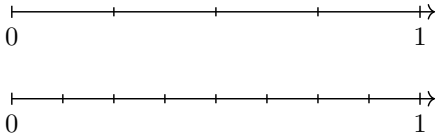
Practice Problems

Show your thinking.

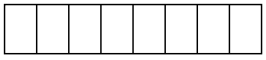
1. One same-length ribbon is colored $\frac{1}{3}$ red. Another is cut into 6 equal pieces. How many pieces must be colored to match?



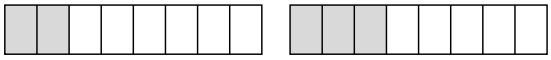
2. Two hikers walk $\frac{3}{4}$ km and $\frac{6}{8}$ km. Do they finish at the same place if they start together along one straight path? Show on the lines.



3. One same-length ribbon is colored $\frac{1}{2}$ red. Another is cut into 8 equal pieces. How many pieces must be colored to match?

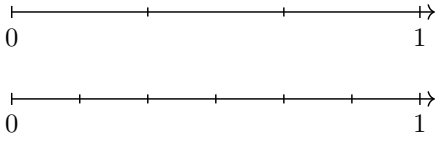


4. Compare $\frac{1}{4}$ and $\frac{3}{8}$ using $<, =,$ or $>$. Use 8-ths.



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

6. Two hikers walk $\frac{2}{3}$ km and $\frac{4}{6}$ km. Do they finish at the same place if they start together along one straight path? Show on the lines.



Answer Key

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

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Each of the first 3 parts becomes 2 smaller pieces because $3 \times 2 = 6$.

2. Color $1 \times 2 = 2$ of the smaller pieces to match $\frac{1}{3}$.

Problem 2

1. 4 equal steps per kilometer become 8 steps when each is split into 2.

2. 3 large steps and 6 small steps reach the same point because $3 \times 2 = 6$.

Problem 3

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

2. Color $1 \times 4 = 4$ of the smaller pieces to match $\frac{1}{2}$.

Problem 4

1. Split each original piece into 2: $\frac{1}{4} = \frac{2}{8}$.

2. $2 < 3$ equal-sized pieces, so $\frac{2}{8} < \frac{3}{8}$.

Problem 5

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

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

Problem 6

1. 3 equal steps per kilometer become 6 steps when each is split into 2.

2. 2 large steps and 4 small steps reach the same point because $2 \times 2 = 4$.

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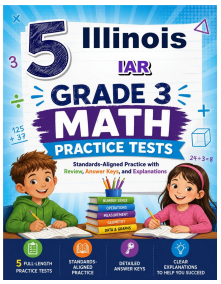

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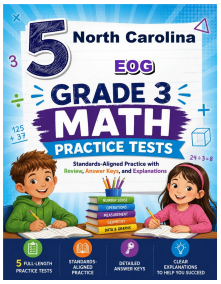

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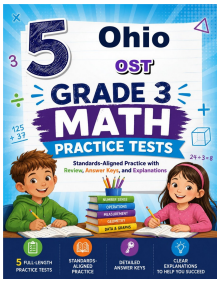

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