Representing 1/b on a Number Line

Apply the skill to decisions and designs

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

QUICK REVIEW

To place $\frac{1}{b}$, divide the length from 0 to 1 into b equal intervals. A unit fraction ends one interval from 0, at the first new tick. Count spaces, not tick marks.

Worked example

Divide 0 to 1 into 5 equal lengths. Mark and label $\frac{1}{5}$.



1. 5 equal spaces need 4 ticks between the endpoints.

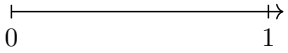
2. The first space is 1 of 5 equal lengths, so its endpoint is $\frac{1}{5}$.

Answer: Place 4 interior ticks; label the first $\frac{1}{5}$.

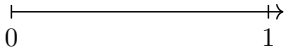
Practice Problems

Show your thinking.

1. A 1-km path has 4 equal sections. Mark the first rest stop, one section from the start. Name its distance.



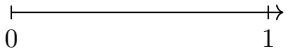
2. Design a 0-to-1 measuring strip whose smallest step is $\frac{1}{8}$. How many equal spaces and interior ticks are needed?



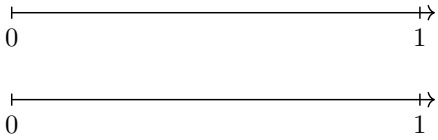
3. A 1-km path has 3 equal sections. Mark the first rest stop, one section from the start. Name its distance.



4. Design a 0-to-1 measuring strip whose smallest step is $\frac{1}{6}$. How many equal spaces and interior ticks are needed?



5. Partition the top line into 4 spaces and the bottom into 8 spaces. Mark $\frac{1}{4}$ and $\frac{1}{8}$. Which is farther from 0?



6. One step is $\frac{1}{2}$. How many equal steps reach 1? Draw those steps on the line.



Answer Key

1. $\frac{1}{4}$ km from the start.
2. 8 spaces and 7 interior ticks.
3. $\frac{1}{3}$ km from the start.
4. 6 spaces and 5 interior ticks.
5. $\frac{1}{4}$ is farther from 0.
6. 2 steps.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Divide the one-kilometer interval into 4 equal lengths.

2. One section is $\frac{1}{4}$ km; the first rest stop is the first new tick after 0.

Problem 2

1. The denominator 8 requires 8 equal spaces in the whole unit.

2. With endpoints already marked, $8 - 1 = 7$ new ticks separate those spaces. Label the first tick $\frac{1}{8}$.

Problem 3

1. Divide the one-kilometer interval into 3 equal lengths.

2. One section is $\frac{1}{3}$ km; the first rest stop is the first new tick after 0.

Problem 4

1. The denominator 6 requires 6 equal spaces in the whole unit.

2. With endpoints already marked, $6 - 1 = 5$ new ticks separate those spaces. Label the first tick $\frac{1}{6}$.

Problem 5

1. The bottom spaces are half as long: two of $\frac{1}{8}$ fit one $\frac{1}{4}$ space.

2. Mark the first tick after 0 on each line. The top mark is farther right because $\frac{1}{4} = \frac{2}{8} > \frac{1}{8}$.

Problem 6

1. The denominator 2 says the unit has 2 equal lengths.

2. 2 copies of $\frac{1}{2}$ make $\frac{2}{2} = 1$, so the last of 2 steps lands at 1.

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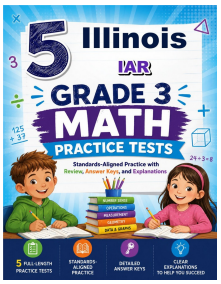

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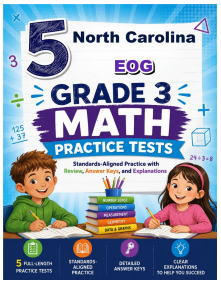

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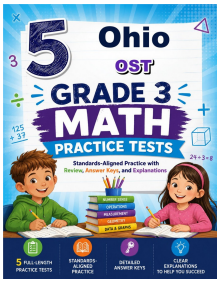

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