Representing a/b on a Number Line

Explore ideas and representations

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

QUICK REVIEW

For $\frac{a}{b}$, the denominator gives the equal parts per whole, and the numerator counts jumps from 0. When the numerator exceeds the denominator, continue past 1 with the same jump length.

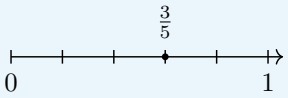
Worked example

Partition the line into 5 equal lengths per whole. Show 3 jumps of $\frac{1}{5}$ to locate $\frac{3}{5}$.

1. Mark 5 equal intervals per whole along 0 to 1. Each jump is $\frac{1}{5}$.

2. Count 3 intervals right from 0: $3 \times \frac{1}{5} = \frac{3}{5}$.

Answer: End at $\frac{3}{5}$, after 3 jumps.



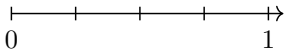
Practice Problems

Show your thinking.

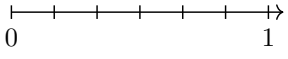
1. Partition the line into 3 equal lengths per whole. Show 2 jumps of $\frac{1}{3}$ to locate $\frac{2}{3}$.



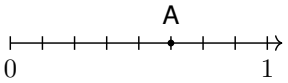
2. Place a dot at $\frac{3}{4}$ and label it P on this line.



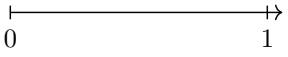
3. A toy moves 4 jumps of $\frac{1}{6}$ meter from 0. Mark the end point and name its distance.



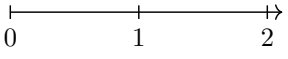
4. Name the number at point A. Count equal intervals, not tick marks.



5. For $\frac{3}{6}$, Max makes 3 equal spaces per whole and counts 6 jumps. Explain the switch and mark the right point.



6. Partition the line into 4 equal lengths per whole. Show 5 jumps of $\frac{1}{4}$ to locate $\frac{5}{4}$.



Answer Key

1. End at $\frac{2}{3}$, after 2 jumps.
2. P is at tick 3 after 0, at $\frac{3}{4}$.
3. $\frac{4}{6}$ meter.
4. $A = \frac{5}{8}$.
5. Make 6 spaces per whole and count 3 jumps.
6. End at $\frac{5}{4}$, after 5 jumps.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Mark 3 equal intervals per whole along 0 to 1. Each jump is $\frac{1}{3}$.
2. Count 2 intervals right from 0: $2 \times \frac{1}{3} = \frac{2}{3}$.

Problem 2

1. The unit interval is divided into 4 equal lengths, each $\frac{1}{4}$.
2. Count 3 of those lengths from 0: $3 \times \frac{1}{4} = \frac{3}{4}$. Put P there.

Problem 3

1. Every jump has length $\frac{1}{6}$ meter, with 6 such lengths in 1 meter.
2. After 4 jumps, the distance is $4 \times \frac{1}{6} = \frac{4}{6}$ meter.

Problem 4

1. Each whole from 0 to 1 has 8 equal intervals, so each interval is $\frac{1}{8}$.
2. A is 5 intervals from 0, giving $5 \times \frac{1}{8} = \frac{5}{8}$.

Problem 5

1. The denominator 6 sets the jump length $\frac{1}{6}$, not $\frac{1}{3}$.
2. The numerator 3 counts the jumps: $3 \times \frac{1}{6} = \frac{3}{6}$.

Problem 6

1. Mark 4 equal intervals per whole along both 0 to 1 and 1 to 2. Each jump is $\frac{1}{4}$.
2. Count 5 intervals right from 0: $5 \times \frac{1}{4} = \frac{5}{4}$. After 4 jumps you reach 1, then 1 more reach $\frac{5}{4}$.

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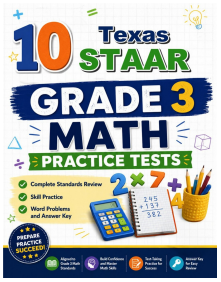

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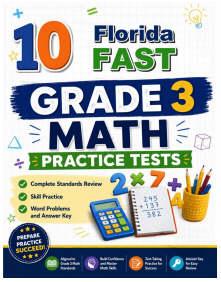

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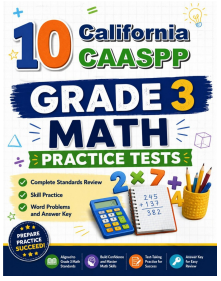

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