# Representing a/b on a Number Line

Spot mistakes, reason, and work backward

**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.

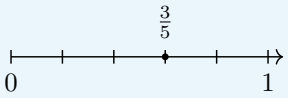
**Worked example**

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.



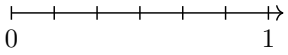

## Practice Problems

Show your thinking.

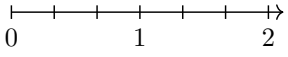
**1.** For $\frac{3}{8}$, Max makes $3$ equal spaces per whole and counts $8$ jumps. Explain the switch and mark the right point.




**2.** A robot starts at $0$ and jumps right by $\frac{1}{6}$ each time until it reaches $\frac{5}{6}$. Draw its jumps and count them.



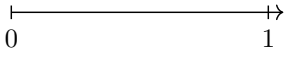

**3.** A robot starts at $0$ and jumps right by $\frac{1}{3}$ each time until it reaches $\frac{4}{3}$. Draw its jumps and count them.



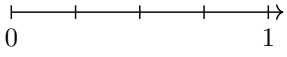

**4.** For $\frac{2}{4}$, Max makes $2$ equal spaces per whole and counts $4$ jumps. Explain the switch and mark the right point.




**5.** Partition the line into $8$ equal lengths per whole. Show $7$ jumps of $\frac{1}{8}$ to locate $\frac{7}{8}$.




**6.** Reach $\frac{3}{4}$ by starting at $1$ and moving backward in $\frac{1}{4}$ steps. Mark the point and check by counting forward from $0$.



# Answer Key

1. Make $8$ spaces per whole and count $3$ jumps.
2. $5$ jumps.
3. $4$ jumps.
4. Make $4$ spaces per whole and count $2$ jumps.
5. End at $\frac{7}{8}$, after $7$ jumps.
6. Move back $1$ step; end at $\frac{3}{4}$.

## Step-by-Step Solutions

Follow each calculation, then check your own work.

### Problem 1

1. The denominator $8$ sets the jump length $\frac{1}{8}$, not $\frac{1}{3}$.
2. The numerator $3$ counts the jumps: $3 \times \frac{1}{8} = \frac{3}{8}$.

### Problem 2

1. One jump moves across one interval of size $\frac{1}{6}$.
2. Start at $0$ and land at $\frac{1}{6}, \frac{2}{6}, \frac{3}{6}, \frac{4}{6}, \frac{5}{6}$ in order. There are $5$ jumps to $\frac{5}{6}$.

### Problem 3

1. One jump moves across one interval of size $\frac{1}{3}$.
2. Start at $0$ and land at $\frac{1}{3}, \frac{2}{3}, 1, \frac{4}{3}$ in order. There are $4$ jumps to $\frac{4}{3}$.

### Problem 4

1. The denominator $4$ sets the jump length $\frac{1}{4}$, not $\frac{1}{2}$.
2. The numerator $2$ counts the jumps: $2 \times \frac{1}{4} = \frac{2}{4}$.

### Problem 5

1. Mark $8$ equal intervals per whole along $0$ to $1$. Each jump is $\frac{1}{8}$.
2. Count $7$ intervals right from $0$: $7 \times \frac{1}{8} = \frac{7}{8}$.

### Problem 6

1. One whole contains $4$ steps; the target contains $3$, so move back $4 - 3 = 1$.
2. Forward checking gives $3 \times \frac{1}{4} = \frac{3}{4}$. The backward and forward routes meet at the same point.

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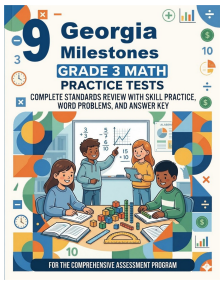


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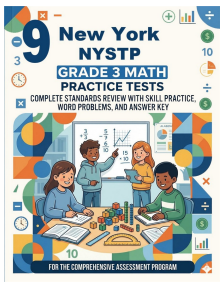


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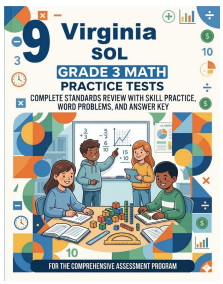


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