

Every OGAP item is specifically aligned with NCTM standards and designed to elicit developing understandings of specific mathematics concepts, common errors students make, or misconceptions or preconceptions that students bring to solving problems and learning new concepts (based on mathematics education research and OGAP studies). Every item is a short constructed response question. The sole purpose of OGAP items, tools, and resources is to inform instruction.

This item, from the [OGAP fraction item bank](#), was designed to elicit the strategies that students use to solve a unit fraction problem (e.g., unit fraction reasoning, modeling, other).

[The student response](#), however, shows the student inappropriately applied whole number reasoning as they solved this problem by focusing on the magnitude of the denominator.

$\frac{1}{3}$ of the students in Joe's class walk to school.

$\frac{1}{4}$ of the students in Joe's class ride the bus.

Do more students walk to school or ride the bus?

Explain your answer using words and diagrams.

No because 1 person rides the bus and 1 person walks to school.

This item, from the [OGAP proportionality item bank](#), was designed to elicit the strategies students use as they solve proportionality problems where the multiplicative relationships within and between ratios are non-integral.

The student response, however, shows that the student inappropriately used the additive relationship, not the multiplicative relationships when solving the problem.

Bob's shower uses 14 gallons of water every 3 minutes. How many gallons of water does Bob use if he takes an 8 minute shower?

Show all your work for this problem.

$$\begin{array}{ccc} & +5 & \\ & \xrightarrow{\quad} & \\ 3 \text{ min} & & 8 \text{ min} \\ & +5 & \\ 14 \text{ gal} & & 19 \text{ gal} \end{array}$$

19 gal.