

# NWEA Assessment Item Illustrating 7.RP.A.2

© 2020 NWEA (EXCEPT FOR COMMON CORE STATE STANDARDS © 2010 NATIONAL GOVERNORS ASSOCIATION CENTER FOR BEST PRACTICES AND COUNCIL OF CHIEF STATE SCHOOL OFFICERS). ALL RIGHTS RESERVED. USED WITH PERMISSION FROM NWEA; VISIT <https://www.nwea.org/> FOR TERMS OF USE.

**Domain:** Ratios and Proportional Relationships

**7.RP.A:** Analyze proportional relationships and use them to solve real-world and mathematical problems.

**Calculator Availability:** Yes

This question has two parts. Use the information to answer Part A and Part B.

A restaurant owner keeps track of the food prepared for guests. On Friday, 15 pounds of vegetables were prepared for 12 guests. On Saturday, 35 pounds of vegetables were prepared for 28 guests. On Sunday, 25 pounds of vegetables were prepared for 20 guests.

**Part A**  
Select one choice from the set to complete the sentence.

Based on this data, the number of pounds of vegetables [ is / is not ] proportional to the number of guests.

**Part B**  
What is the constant of proportionality, if any, for this scenario?

A. 1.25 guests per pound of vegetables

B. 1.25 pounds of vegetables per guest

C. there is no constant of proportionality

**Alignment: 7.RP.A.2:** Recognize and represent proportional relationships between quantities.

Using proportional relationships to solve problems and modeling with mathematics are both foundational for future studies in mathematics and science, and both are used frequently in everyday life. This item requires students to interpret the scenario and use the values provided to determine if the relationship is proportional and calculate the constant of proportionality as a unit rate, if it exists.

**Coherence:** In grade 6, students were introduced to the concept of ratios and began calculating unit rates with whole numbers. Also, in grade 6, students solved problems involving unit rate, and the equivalent terms *for every*, *for each*, *for each 1*, and *per* were established and used.<sup>6.RP.A</sup> This grade 7 standard lays the foundation for understanding relationships as functions and prepares students to graph, compare, and interpret proportional relationships as linear functions in grade 8<sup>8.F.A/B</sup> and to develop an understanding of slope.<sup>8.EE.B</sup>

**Rigor:** This item attends to conceptual understanding, application, and procedural skill. Students must understand and recall the meaning of a proportional relationship in a familiar scenario that makes the mathematics obvious. Students use a below grade-level procedure of division to determine the constant of proportionality. The calculator is provided as a tool, which, if used, lessens the procedural complexity of the item.

## Answer Key:

This question has two parts. Use the information to answer Part A and Part B.

A restaurant owner keeps track of the food prepared for guests. On Friday, 15 pounds of vegetables were prepared for 12 guests. On Saturday, 35 pounds of vegetables were prepared for 28 guests. On Sunday, 25 pounds of vegetables were prepared for 20 guests.

### Part A

Select one choice from the set to complete the sentence.

Based on this data, the number of pounds of vegetables  is /  is not ] proportional to the number of guests.

### Part B

What is the constant of proportionality, if any, for this scenario?

- A. 1.25 guests per pound of vegetables
- B. 1.25 pounds of vegetables per guest
- C. there is no constant of proportionality

## Learn More

Learn more with the [Math Assessment Item Alignment Professional Development Modules](#).

All content linked to within this resource was free for use when this resource was published in August 2020. Over time, the organizations that manage that external content may move or remove it or change the permissions. If the content is no longer available, please email [info@studentsachieve.net](mailto:info@studentsachieve.net).