

NWEA Assessment Item Illustrating 6.RP.A.3.b

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Domain: Ratios and Proportional Relationships

6.RP.A: Understand ratio concepts and use ratio reasoning to solve problems.

Calculator Availability: Yes

Use the information to answer the question.

A hose fills an empty fish tank with 24 gallons of water in 8 minutes.

At that same rate, how many minutes will it take the hose to fill a fish tank with 60 gallons of water? Enter the answer in the box.

minutes

Alignment: 6.RP.A.3b: Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?*

Ratios and proportional relationships are both foundational for future study in mathematics and science and used frequently in everyday life. This item requires students to understand unit rate in order to solve a problem, with multiple allowable approaches toward the solution. Students may create a table or may find the unit rate of either 1 minute per 3 gallons or 3 gallons per 1 minute.

Coherence: Ratio concept development builds on the work of grade 5, in which students began to analyze patterns and relationships^{5.OA.A} and to solve problems involving multiplication and division of fractions.^{5.NF.B} Calculating the unit rate and identifying equivalent rates and ratios is a foundation for solving more complex problems using proportional relationships,^{7.RP.A} and builds the foundation for the grade 8 work of linear functions and slope understanding.^{8.F.A/B}

Rigor: This item attends to conceptual understanding and application. Students use their conceptual understanding of proportional relationships to recognize the relationship between the given quantities and to calculate the unit rate to solve a problem. The mathematics is not immediately obvious in this item. Students use the relationship between the first two quantities (gallons and time) to determine the unit rate, and then they use that rate to determine how long it will take to fill a tank of a different size.

Answer Key:

Use the information to answer the question.

A hose fills an empty fish tank with 24 gallons of water in 8 minutes.

At that same rate, how many minutes will it take the hose to fill a fish tank with 60 gallons of water? Enter the answer in the box.

minutes

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