

Just In Time Quick Check
Standard of Learning (SOL) 6.5c

Strand: Computation and Estimation

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The student will solve multistep practical problems involving addition, subtraction, multiplication, and division of decimals.

Grade Level Skills:

- Solve multistep practical problems involving addition, subtraction, multiplication and division with decimals. Divisors are limited to a three-digit number, with decimal divisors limited to hundredths.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [Practical Problems Involving Decimals](#) (Word) / [PDF](#)
- VDOE Algebra Readiness Formative Assessments
 - [SOL 6.5c](#) (Word) / [PDF](#)
- VDOE Algebra Readiness Remediation Plans
 - [Problem Solving- Strategies for Finding the Hidden Question](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: Grade 6 [\(Word\)](#) / [\(PDF\)](#)
 - Multiplication and Division of Decimals

Supporting and Prerequisite SOL: [5.6a](#), [5.6b](#), [5.5b](#), [4.6b](#), [4.5c](#)

SOL 6.5c - Just in Time Quick Check

1. The Harmon family is going to an amusement park. The table below shows the cost of tickets.

Ticket Type (Age)	Cost of Ticket
Adult (12-64)	\$15.25
Child (3-11)	\$9.50
Senior (65 and up)	\$10.25
Infant (0-2)	Free

If the Harmon family has 3 adults, 4 children, and 2 infants going to the amusement park, what is the total cost of these tickets?

2. Audrey went shopping and bought two pairs of jeans for \$16.95 each, a shirt for \$16.75, and a belt for \$9.50. If she paid for the purchases with a \$100 bill, how much change should she get?
3. Conner is saving to buy a new bicycle for \$140.20. He has already saved \$25.50. If he saves an additional \$15.50 each week, how many weeks will it take for Conner to have enough money to buy the bicycle?
4. Jeff is putting pieces of pipe together to bring water to his garden. He already has a piece of pipe that is 9.6 feet long, however, the pipe must be 42 feet long to reach his garden. The hardware sells pipes that are 3.2 feet long. What is the least number of pieces of pipe that Jeff will need buy to have enough pipe to reach his garden?

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Common Errors/Misconceptions and their Possible Indications

1. The Harmon family is going to an amusement park, and the table below shows the cost of tickets.

Ticket Type (Age)	Cost of Ticket
Adult (12-64)	\$15.25
Child (3-11)	\$9.50
Senior (65 and up)	\$10.25
Infant (0-2)	Free

If the Harmon family has 3 adults, 4 children, and 2 infants going to the amusement park, what is the total cost of these tickets?

This question can be difficult for some students because they must take the data from the table and apply it to information in the question. There are multiple steps, and students often do not complete all the steps necessary.

A common error is that students know that tickets from the categories adult, child, and infant all need to be purchased, but they do not account for the number of each type. They add the cost of one ticket for each category ($15.25+9.5 = 24.75$) instead of accounting for the cost of multiple tickets of each type.

Some students also believe they must use all of the given information, rather than having a category that is not used. In this example, senior tickets are not purchased.

A strategy to help students with this problem is to do a hands-on activity assigning students to represent the people in the Harmon family. By making sure each person has a ticket, students can visualize how many tickets of each type must be purchased. Some students may start with repeated addition and then progress to multiplication.

2. Audrey went shopping and bought two pairs of jeans for \$16.95 each, a shirt for \$16.75, and a belt for \$9.50. If she paid for the purchases with a \$100 bill, how much change should she get?

One common error made by students in this type of problem is that they overlook the word “two” in reference to the jeans. They add up the three numbers shown as cost (one of each), and then subtract it from \$100. ($100-43.20=56.80$)

Sometimes students also do the addition of the purchases correctly but forget the step of finding out how much change is left by subtracting the total from \$100. Their answer is just the total cost of purchases. ($16.95 + 16.95 + 16.75 + 9.50 = 60.15$)

A strategy for helping students make sure that they account for all purchases is for them to highlight the important information. Another strategy that may help students is to encourage them to estimate before finding the solution. If they have an idea what the total for the purchases should be and then what the change should be, they will be able to assess whether the answer is reasonable.

If students are having difficulty working with the larger numbers, it may be helpful to provide prices that are less complicated (\$2, \$8, \$10, etc.) and then help them to see how to find the total and the change.

3. Conner is saving to buy a new bicycle for \$140.20. He has already saved \$25.50. If he saves an additional \$15.50 each week, how many weeks will it take for Conner to have enough money to buy the bicycle?

Students may complete only one operation to solve this problem. Students may divide \$140.20 by 15.50 to find the total weeks, forgetting that Conner already had some money saved up at the beginning. Or students may subtract \$25.50 from \$140.20 and use \$114.70 for the answer, not realizing that the question asks for the number of weeks instead of the number of dollars.

An additional common error is for students to add \$25.50 to \$15.50 and then divide \$140.20 by \$45 to find the number of weeks.

Teachers may wish to encourage students to create a chart with week number and money saved to help organize the information. Students may want to use repeated addition (with the \$25.50 added at the beginning) and follow with recording the number of weeks it takes to have enough to buy the bicycle.

4. Jeff is putting pieces of pipe together to bring water to his garden. He already has a piece of pipe that is 9.6 feet long, however, the pipe must be 42 feet long to reach his garden. The hardware sells pipes that are 3.2 feet long. What is the least number of pieces of pipe that Jeff will need buy to have enough pipe to reach his garden?

This multistep problem has several areas where students might demonstrate misconceptions. If a student has difficulty in completing all steps of the problem, the teacher may wish to encourage the student to break the problem down into parts, draw a picture to represent the situation, or use manipulatives to model the situation.

Additionally, students may not know what to do with the final answer of 10.125. They may decide that Jeff needs 10 pipes. Real world understanding would help them to see that in this context, Jeff would need to round that quotient up to 11 pipes. Encourage students to repeatedly add 3.2 together, asking, "Do we have enough?" and when it gets close, remind students that it must be AT LEAST 42 feet long. Students could draw a picture, or use manipulatives to construct the pipe to determine if they have enough.