

Just In Time Quick Check
Standard of Learning (SOL) 4.6b

Strand: Computation and Estimation

Standard of Learning (SOL) 4.6b

The student will solve single-step and multistep practical problems involving addition and subtraction with decimals.

Grade Level Skills:

- Solve single-step and multistep practical problems that involve adding and subtracting with decimals through thousandths.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [4.6ab - Decimal Sums and Differences \(Word\)](#) and [PDF Version](#)
 - [4.6b - Solving Contextual Problems: Adding and Subtracting Decimals \(Word\)](#) and [PDF Version](#)
- VDOE Algebra Readiness Remediation Plans
 - [Problem Solving – Strategies for Finding the Hidden Questions \(Word\)](#) and [PDF Version](#)
- VDOE Word Wall Cards: Grade 4 ([Word](#) and [PDF](#))
 - Decimal Place Value Position
 - Addition
 - Subtraction

Supporting and Prerequisite SOL: [4.3a](#), [4.4b](#), [4.4d](#), [4.6a](#), [3.3b](#), [2.6c](#)

SOL 4.6b - Just in Time Quick Check

- 1) Twin brothers went to the doctors for a checkup. One of the twin brothers, Kevin, weighed 83.42 pounds. If Kevin weighed 4.7 pounds more than his twin brother, how many pounds did his twin brother weigh?

- 2) A family went out to dinner and to the movies. They spent \$75.98 on dinner and \$56.73 at the movies. About how much money did the family spend on dinner and the movies?

- 3) This table shows the results of the top three swimmers that competed in the same race. The results show the swimmers' final time in seconds.

Swim Race Results

Results	Time in Seconds
First	25.839
Second	26.07
Third	26.245

What is the difference, in seconds, between the swimmer who finished first and the swimmer who finished second?

- 4) Ryan purchased \$34.65 in groceries at the store. He paid for his groceries with a \$50 dollar bill. The cashier gave him \$24.65 in change. Did the cashier give Ryan the correct amount of change? Explain why or why not.

- 5) The total cost of Mike's water, gas and electric bills for the month of April was \$261.20. Mike's gas bill was \$58.45 and his electric bill was \$106.50. What was the cost of Mike's water bill?

SOL 4.6b - Just in Time Quick Check Teacher Notes

Common Errors/Misconceptions and their Possible Indications

- 1) Twin brothers went to the doctors for a checkup. One of the twin brothers, Kevin, weighed 83.42 pounds. If Kevin weighed 4.7 pounds more than his twin brother, how many pounds did his twin brother weigh?

A common misconception for some students is not understanding the context of the problem and how to approach the problem in order to solve it. It is important for students to be exposed to variety of problem types. Some students may add the two numbers together instead of subtracting to find the weight of the twin brother. When solving problems students should focus on thinking and reasoning rather than on key words. Using models and visual representations are useful when understanding word problems. Students would benefit from exposure to a variety of different problem types as well as the opportunities to create and solve their own practical problems. Descriptions of common addition and subtraction problem types can be found in the [Grade 3 Curriculum Framework](#).

- 2) A family went out to dinner and to the movies. They spent \$75.98 on dinner and \$56.73 at the movies. About how much money did the family spend on dinner and the movies?

A common misconception for students is assuming that in order to estimate you must first find an exact solution, and then round that answer to a dollar amount. Students should be encouraged to use estimation skills, such as creating friendly numbers, prior to solving the problem. If students did not use estimation strategies and immediately tried to solve the problem procedurally, then these students would benefit from exploring a variety of problems to understand the purpose of estimation. Estimation is valuable when solving problems to determine the reasonableness of an answer.

When estimating the amount of money spent, it is important for students to recognize that the decimal 75.98 is close to 76 and that the decimal 56.73 is close to 57. Some students may even notice that both decimals are close to the next ten using the estimation strategy to create the numbers 80 and 60. When sharing estimating strategies, it is important for students to understand the purpose of estimation and that an estimate is a number that lies within a range of the exact solution. Sharing estimations and determining the best estimate is important for students to apply estimation strategies when solving problems.

- 3) This table shows the results of the top three swimmers that competed in the same race. The results show the swimmers' final time in seconds.

Swim Race Results

Results	Time in Seconds
First	25.839
Second	26.07
Third	26.245

What is the difference, in seconds, between the swimmers who finished first and the swimmer who finished second?

A common difficulty for some students when solving problems with a table is being able to determine the information needed to solve the problem. When solving problems with time, some students are unable to

understand that the least amount time it takes to complete a race means that the individual finished the race sooner. Some students assume that the larger the quantity the better the result.

When finding the difference between first and second place, a common misconception is to subtract $25.839 - 26.07$. Since fourth graders do not have experience with negative numbers, they will think this is impossible, or they may subtract the decimal portion and then the whole numbers, obtaining 1.769. Using models such a number line to show that the distance between the two race times is the difference between the numbers will benefit students. In addition, modeling using concrete materials will help students recognize place values. When students explore a variety of problem types and different strategies students will develop a greater understanding of decimals. Using estimation to determine the reasonableness of answers would also benefit students. 25.839 is close to 26 and 26.07 is close to 26, so the difference in the swimmers' times is going to be less than a whole.

- 4) Ryan purchased \$34.65 in groceries at the store. He paid for his groceries with a \$50-dollar bill. The cashier gave him \$24.65 in change. Did the cashier give Ryan the correct amount of change? Explain why or why not.

When given a word problem it is important for students to understand what to do with information provided and to make sense of the given information. In this problem, students may use several strategies to determine the correct amount of change. Some students could apply an estimation strategy such as recognizing \$34.65 is close to \$35 therefore the best estimate of change is around 15 dollars. Other students may add the two parts to find the whole. When adding \$34.65 and \$24.65, a student may discover that the sum is more than 50 dollars; therefore, the amount of change is incorrect. Another strategy could be to subtract 50 and \$34.65 to determine the change. If a student gets a difference of \$24.65 and agrees that Ryan did receive the correct amount of change, then this student would benefit from additional support with models. Using money to model the problem or base ten blocks are a few examples of manipulatives that could support the student's learning.

It is important to identify the strategy the students used to determine whether \$24.65 is the correct amount of change. Students sharing strategies and justifying their answers is important in developing a greater understanding of mathematics.

- 5) The total cost of Mike's water, gas and electric bills for the month of April was \$261.20. Mike's gas bill was \$58.45 and his electric bill was \$106.50. What was the cost of Mike's water bill?

Some students may see "total" as a key word, and add \$261.20, \$58.45, and \$106.50 to obtain an answer of \$426.15. Students should be encouraged to think and reason rather than focus on key words. The use of associating key words to specific operations will often lead to incorrect solutions. Modeling the situation and indicating the total cost of Mike's bills is the whole will help students understand they are looking for a portion of the whole. Teachers may also wish to have students first estimate the cost of Mike's water bill. His gas bill was close to \$60 and his electric bill was close to \$110, a combined amount of \$170. Therefore, his water bill has to be less than \$100 if his "whole" was \$261.20.