

Just In Time Quick Check
Standard of Learning (SOL) 4.4b

Strand: Computation and Estimation

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The student will estimate and determine sums, differences, and products of whole numbers.

Grade Level Skills:

- Estimate whole number sums, differences, products, and quotients, with and without context.
- Apply strategies, including place value and the properties of addition to determine the sum or difference of two whole numbers, each 999,999 or less.
- Apply strategies, including place value and the properties of multiplication and/or addition, to determine the product of two whole numbers when both factors have two digits or fewer.
- Refine estimates by adjusting the final amount, using terms such as *closer to*, *between*, and *a little more than*.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [Addition and Subtraction with Whole Numbers](#) (Word) / [PDF](#)
 - [Multiplying Two Digit Numbers: Bridging from the Concrete to the Symbolic](#) (Word)/[PDF](#)
- VDOE Word Wall Cards: [Grade 4](#) (Word) / [PDF](#)
 - Multiply: Product
 - Divide: Quotient
 - Multiplication: Number Line Model
 - Division: Number Line Model
- Instructional Videos for Teachers
 - [Array Model for Multiplication \(grades 3-8\)](#)
- Desmos Activity
 - [Visual Number String- Candy](#)

Supporting and Prerequisite SOL: [4.1a](#), [4.4a](#), [3.3a](#), [3.3b](#), [3.4a](#), [3.4b](#), [2.5a](#), [2.6a](#), [2.6b](#), [2.6c](#)

SOL 4.4b - Just in Time Quick Check

1) What is the sum of 693,981 and 378,932?

2) Solve this problem.

$$738,000 - 157,295$$

3) Solve this problem.

$$32 \times 78$$

4) Which best describes the difference between 12,983 and 8,051? The difference is—

- a) closer to 2,000 than 3,000
- b) closer to 3,000 than 4,000
- c) closer to 4,000 than 5,000
- d) closer to 5,000 than 6,000

SOL 4.4b - Just in Time Quick Check Teacher Notes

1) What is the sum of 693,981 and 378,932?

A common misconception for some students when solving computation problems is not having an understanding of vocabulary terms. Exploring vocabulary terms using Word Wall cards and manipulatives to reinforce connections is a strategy that would benefit students.

A common error for students in computation problems occurs when regrouping is required. Some students struggle with the meaning of regrouping and believe they are just “carrying” the 1 to the next number. For example, some students do not understand that ten 10s becomes 100 and they are adding 100 to the group. In this problem, the first regrouping occurs in the tens place. Students must take the group of ten 10s and add this 100 to the 18, hundreds ($900 + 900$), resulting in 19, hundreds. If students struggle with this concept, using manipulatives such as base ten blocks will help them build understanding. It is important to continue to focus on, and build place value skills.

Some students will not understand what to do with the sum of the digits in the hundred thousand place. One strategy that students may use is to estimate to determine if their answer is reasonable. Rounding to the largest place value or looking for “friendly” numbers will help struggling students think about their result and identify possible errors. In this problem, if students estimate, they would know their answer must be greater than one million. In addition, making the connection that having 10, hundred thousands, is equivalent to 1 million will help them connect the algorithm to their place value knowledge. It is important to continue to focus on place value and estimation skills when solving operations with larger numbers.

Allowing students to share their strategies when solving problems gives all students an opportunity to connect math and language, as well as deepen their understanding of mathematical concepts

2) Solve this problem.

$$738,000 - 157,295$$

A common misconception for some students when subtracting two numbers that require regrouping is to subtract the smaller number from the larger number. If students have a difference of 621,295, the students did not regroup and subtracted the smaller digit from the larger digit in each place value. These students would benefit from using base ten blocks to model subtraction.

Some students may not understand how to subtract and regroup with zeroes. If students are unable to regroup with zeroes, using base ten blocks to model subtraction will provide a physical and visual way for students to understand this concept. Modeling with smaller numbers may be necessary in order to apply this concept to larger quantities.

When exploring the concept of subtraction, it is also important for students to understand that the distance between two numbers is also the difference of those numbers. Students can explore this concept by using a number line and counting the jumps between the numbers. Adding-on is another strategy to help students explore and discover the difference between two numbers.

3) Solve this problem.

$$32 \times 78$$

When finding the product of two whole numbers, students should have the opportunity to explore a variety of strategies and representations. It is common for students to solve correctly a two-digit number multiplied by a single-digit number, but they may be unable to apply these skills when multiplying a two-digit number by a two-digit number. This is apparent when students do not understand the concept of multiplication and how to solve the problem conceptually. When solving the problem with an algorithm, some students will not apply place value concepts and instead ignore the value of each digit. When this happens, students tend to forget to add a zero when multiplying by a ten or they often forget to add when they carry. These students would benefit from exploring a variety of strategies using concrete models and/or pictorial representations. The area or array model is one strategy that is a pictorial representation that builds number sense while focusing on the value of the numbers. Please refer to the Instructional Video on Array Models for Multiplication. Exploring partial products is another strategy that will help students to build a greater understanding of number sense. When students have a conceptual understanding of multiplication they can apply these skills to a more efficient strategy when multiplying larger numbers.

4) Which best describes the difference between 12,983 and 8,051? The difference is—

- a) closer to 2,000 than 3,000
- b) closer to 3,000 than 4,000
- c) closer to 4,000 than 5,000
- d) closer to 5,000 than 6,000

Estimation is a strategy that students can use to determine an approximate answer and to verify the reasonableness of a solution. Estimation requires students to conceptualize numbers. Students will need to determine whether they should round up or down, round to a specific place value, or apply front-end estimation. In order to determine the best estimate, students will need to analyze each number. The number 12,983 is close to 13,000 and the number 8,051 is close to 8,000; therefore, the difference is close to 5,000. A common misconception for some students is to look at the thousand's place and subtract 12,000 and 8,000, while other students may find the difference between 13,000 and 10,000. If students are unable to determine the best estimate, it may help to explore a variety of estimation strategies with them, selecting problems to highlight the use of appropriate strategies.