

Just In Time Quick Check
Standard of Learning (SOL) 6.6b

Strand: Computation and Estimation

Standard of Learning (SOL) 6.6b

The student will solve practical problems involving operations with integers.

Grade Level Skills:

- Solve practical problems involving addition, subtraction, multiplication, and division with integers.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [6.6b - Application of Integer Operations](#) (Word) / [PDF Version](#)
- VDOE Algebra Readiness Formative Assessments
 - [SOL 6.6b](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: [Grade 6](#) (Word) | ([PDF](#))
 - Integer Operations: addition, subtraction, multiplication, division

Supporting and Prerequisite SOL: [6.3a](#), [6.6a](#), [5.4](#), [4.4d](#)

SOL 6.6b - Just in Time Quick Check

1. Hubie enters an elevator on the 4th floor and rides up three floors to visit a friend. He then rides the elevator down five floors to get ice and back up seven floors to the pool. When Hubie finally exits the elevator, on what floor is he?
2. The temperature during the day is 8 degrees Fahrenheit. If the temperature drops 17 degrees after the sun goes down and remains constant, what is the temperature at night?
3. The temperature outside currently is 12 degrees and is dropping at an average rate of 3 degrees per hour. If the temperature continues to drop at this rate throughout the evening, what will the temperature be in 8 hours?
4. Fred has \$175 in his bank account. He deposits \$150 from his paycheck. He withdraws \$100 to get his window repaired and then pays \$225 for his car payment. How much money does Fred have in his bank account after he makes his car payment?
5. Ty hiked up a mountain to 2,523 meters above sea level. Pete is a scuba diver and dove 319 meters below sea level. If Ty and Pete started at the same elevation, how much higher was Ty than Pete when they were the farthest apart?
6. During a 12-hour period, the temperature rose by 48°F. The temperature rose the same number of degrees each hour. How many degrees did the temperature rise each hour?

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Common Errors/Misconceptions and their Possible Indications

1. Hubie enters an elevator on the 4th floor and rides up three floors to visit a friend. He then rides the elevator down five floors to get ice and back up seven floors to the pool. When Hubie finally exits the elevator, on what floor is he?

A student may read too quickly and skip steps in multi-step practical problems. This student may need more practice with single-step problems. A student may answer 19. If this error occurs, the student did not understand that when the elevator went down, they should subtract 5 from the current total. Teachers are encouraged to have students use number lines or other concrete materials to help with conceptual understanding. Students may benefit from drawing a picture or using a number line (vertical or horizontal) and indicate a starting place of four.

2. The temperature during the day is 8 degrees Fahrenheit. If the temperature drops 17 degrees after the sun goes down and remains constant, what is the temperature at night?

Understanding vocabulary related to integers (drop and rise can sometimes be difficult for students). Some students may struggle with the new concept of subtracting a larger number from a smaller number and the difference being negative. A common error is for students to subtract the smaller number from the larger number to obtain an answer of 9. Teachers are encouraged to have students use number lines (vertical and horizontal) or other concrete materials to help with conceptual understanding.

3. The temperature outside currently is 12 degrees and is dropping at an average rate of 3 degrees per hour. If the temperature continues to drop at this rate throughout the evening, what will the temperature be in 8 hours?

Students using “key words” instead of the full context of the problem to determine the operation may subtract 3 from 12 because of the word “dropping”. Students need practice with all integer operations in practical situations to assist with determining which operation to use. Students may use different strategies of multiplication or repeated addition/subtraction to determine the answer. A common error is for students to answer -24 indicating the temperature dropped 24 degrees. These students understand the concept, but have not taken into account the current temperature. This question also provides an opportunity to discuss the “change” in the temperature, which is 24 degrees rather than -24 degrees.

4. Fred has \$175 in his bank account. He deposits \$150 from his paycheck. He withdraws \$100 to get his window repaired and then pays \$225 for his car payment. How much money does Fred have in his bank account after he makes his car payment?

Vocabulary associated with money may be unfamiliar to some students. In this question, some students may see “pays” and treat it as a deposit rather than a withdrawal. Using Word Wall cards and conducting a math talk about words representing negative and positive scenarios to introduce the vocabulary of “deposit” and “withdraw” will benefit all students.

Teachers may wish to use manipulatives (play money) to engage students in learning about deposits and withdrawals.

5. Ty hiked up a mountain to 2,523 meters above sea level. Pete is a scuba diver and dove 319 meters below sea level. If Ty and Pete started at the same elevation, how much higher was Ty than Pete when they were the farthest apart?

Vocabulary, such as “above and below sea level”, as well as elevation, may be confusing to some students. Students may understand how to find the difference, but a common error is to subtract the absolute value of the two distances resulting in 2204. Students often struggle with the concept of subtracting a negative number and may be confused that the distance will be greater than Ty’s elevation. Teachers may wish to encourage students to draw pictures of this situation, with sea level at zero meters, in order to visualize the difference (distance) between a negative integer and a positive integer.

6. During a 12-hour period, the temperature rose by 48°F . The temperature rose the same number of degrees each hour. How many degrees did the temperature rise each hour?

One common error is that students perform the wrong operation and subtract getting the answer of 36°F . Extra instruction and practice with problem solving and making sense of “each hour” or “per hour” will help students understand division. Students may also write their answer as a negative quotient because they are working with integers. Vocabulary such as “rise” (rose) and fall can be demonstrated and reinforced on a number line. Teachers are encouraged to use number lines and manipulatives to help with problem solving.