

NWEA Assessment Item Illustrating 7.NS.A.3

© 2020 NWEA (EXCEPT FOR COMMON CORE STATE STANDARDS © 2010 NATIONAL GOVERNORS ASSOCIATION CENTER FOR BEST PRACTICES AND COUNCIL OF CHIEF STATE SCHOOL OFFICERS). ALL RIGHTS RESERVED. USED WITH PERMISSION FROM NWEA; VISIT <https://www.nwea.org/> FOR TERMS OF USE.

Domain: The Number System

7.NS.A Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Calculator Availability: No

Use the information to answer the question.

The table shows the air temperature on the ground and the air temperature outside a plane when the plane is at cruising altitude.

Location	Air Temperature (°F)
Ground	53
Cruising Altitude	-64

How much colder is the air temperature at cruising altitude compared to the air temperature on the ground? Enter a number in the box to complete the sentence.

It is °F colder.

Alignment: 7.NS.A.3: Solve real-world and mathematical problems involving the four operations with rational numbers.

Operating with rational numbers is an important part of the K–8 progression. In this item, students are asked to solve a word problem by operating with a positive and a negative integer. The numbers and operations in the item were chosen to illustrate the grade-level expectation for subtraction with integers.

Coherence: Students should be given opportunities to work toward fluency throughout instruction. Students began developing computational strategies as early as kindergarten and continue to develop strategies through grade 7. In grade 6, students began to develop the concept of negative rational numbers and work with the number line below zero.^{6.NS.C.6} In grade 7, students apply and extend their understandings of negative numbers to compute with rational numbers of all forms. Computation with rational numbers supports grade 7 work with expressions and equations,^{7.EE.A/B} and prepares students for work with computing with scientific notation,^{8.EE.A.4} and understanding the work with irrational numbers.^{8.NS.A}

Rigor: This item attends to procedural skill and application. Students have developed grade-level procedures for operating with rational numbers in different forms, including signed numbers, and call upon those algorithms to compute. The real-world scenario gives meaning to the operations, and the mathematics is directly indicated by the context.

Answer Key:

Use the information to answer the question.

The table shows the air temperature on the ground and the air temperature outside a plane when the plane is at cruising altitude.

Location	Air Temperature (°F)
Ground	53
Cruising Altitude	-64

How much colder is the air temperature at cruising altitude compared to the air temperature on the ground? Enter a number in the box to complete the sentence.

It is °F colder.

Learn More

Learn more with the [Math Assessment Item Alignment Professional Development Modules](#).

All content linked to within this resource was free for use when this resource was published in August 2020. Over time, the organizations that manage that external content may move or remove it or change the permissions. If the content is no longer available, please email info@studentsachieve.net.