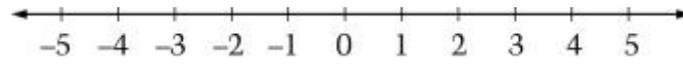
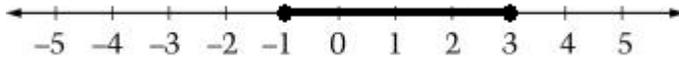


On the number line below, shade the part of the line that shows the set of all numbers greater than or equal to -1 and less than or equal to 3.



Scoring Guide

Solution:



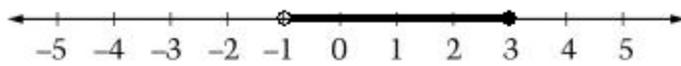
Score & Description

Correct

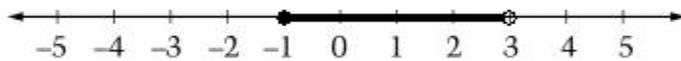
Correct response

Incorrect #2

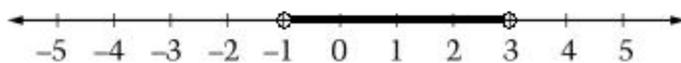
Any of the following:



OR



OR



Incorrect #1

Any incorrect response other than those shown above

In this question the student needed to demonstrate an understanding of the ordering of real numbers by graphing an interval—not individual points—on the number line.

*The use of more than one incorrect category in this question enabled NAEP to gather data on common student errors. Any response that fell into one of the incorrect categories earned no credit.

Correct - Student Response

- 1 On the number line below, shade the part of the line that shows the set of all numbers greater than or equal to -1 and less than or equal to 3.



Incorrect #2 - Student Response

- 1 On the number line below, shade the part of the line that shows the set of all numbers greater than or equal to -1 and less than or equal to 3.



Incorrect #1 - Student Response

- 1 On the number line below, shade the part of the line that shows the set of all numbers greater than or equal to -1 and less than or equal to 3.



2003 National Performance Results

Score	Percentage of Students
Correct	45%
Incorrect #2	2%
Incorrect #1	49%
Omitted Item	5%
Off Task	0%
	<hr/>
	0 100

Note:

- These results are for public and nonpublic school students.
- Percentages may not add to 100 due to rounding.

Mathematical Content Area: *Algebra and functions*
Mathematical Ability: *Conceptual understanding*

Mathematical Content Area

Algebra and functions

This question measures algebra and functions. This content area extends from work with simple patterns, to basic algebra concepts, to sophisticated analysis. Students are expected to use algebraic notation and thinking in meaningful contexts to solve mathematical and real-world problems, addressing an increasing understanding of the use of functions. Other topics assessed include using open sentences and equations as representational tools and using the notion of equivalent representations to transform and solve number sentences and equations of increasing complexity.

Mathematical Ability

Conceptual understanding

This question measures students' conceptual understanding. Students demonstrate conceptual understanding in mathematics when they provide evidence that they can recognize, label, and generate examples of concepts; use and interrelate models, diagrams, manipulatives, and varied representations of concepts; identify and apply principles; know and apply facts and definitions; compare, contrast, and integrate related concepts and principles; recognize, interpret, and apply the signs, symbols, and terms used to represent concepts. Conceptual understanding reflects a student's ability to reason in settings involving the careful application of concept definitions, relations, or representations of either.

	Description	Grade	Type	Difficulty
1	Graph an inequality on a number line	8th	Short Constructed Response	Medium