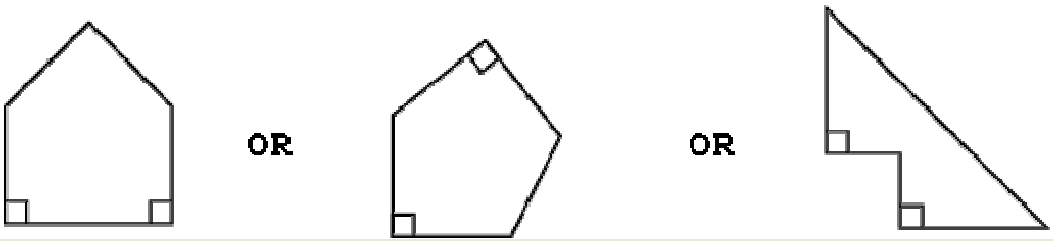
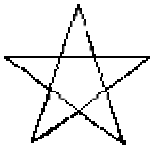
In the space below, draw a closed figure with 5 sides. Make 2 of the angles right angles.

Scoring Guide

Solution:
Figure must be closed and have 5 sides and 2 or more right angles.

Right angles do not have to be marked, but should appear to be right angles. Two right angles must be on the inside of the figure.



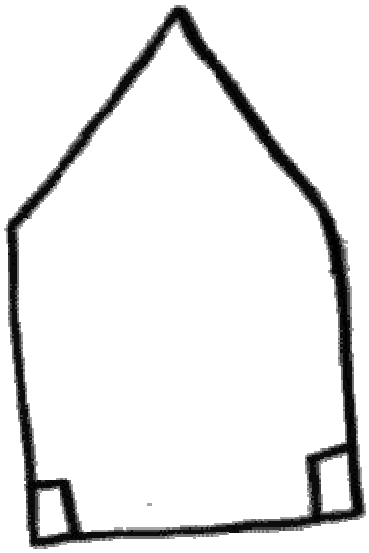
Score & Description
Correct Correct response.
Incorrect #3 Figure drawn is a five-pointed star with a pentagon shown in the interior. The pentagon may or may not have right angles. 
Incorrect #2 Figure has 5 sides and only 1 right angle.
Incorrect #1 No right angles in the figure drawn. OR Figure is not 5-sided or is not closed.

In this question the student needed to show geometric understanding by drawing a closed figure with 5 sides and at least 2 right angles. Students did not have a ruler or protractor.

*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

In the space below, draw a closed figure with 5 sides. Make 2 of the angles right angles.

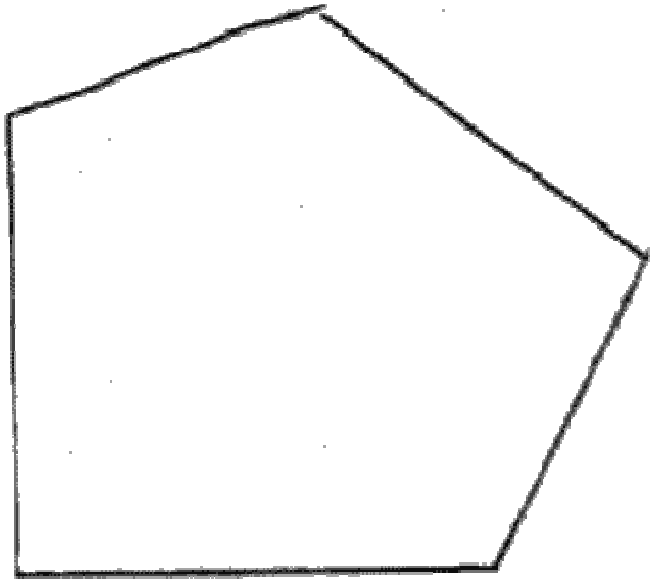


Incorrect #3 - Student Response

In the space below, draw a closed figure with 5 sides. Make 2 of the angles right angles.

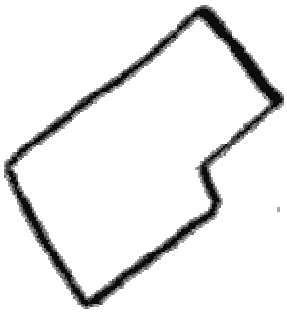
Incorrect #2 - Student Response

In the space below, draw a closed figure with 5 sides. Make 2 of the angles right angles.

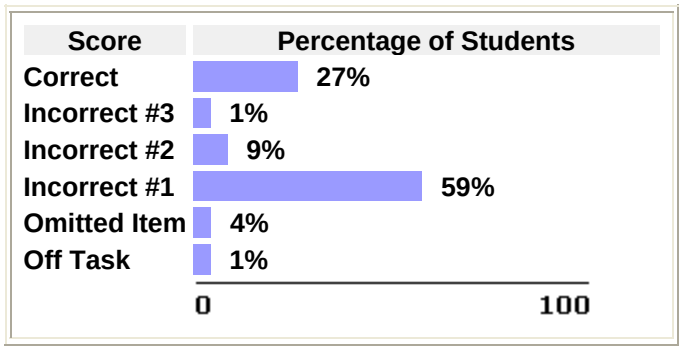


Incorrect #1 - Student Response

In the space below, draw a closed figure with 5 sides. Make 2 of the angles right angles.



2003 National Performance Results



Note:

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

Mathematical Content Area

Geometry and spatial sense

This question was classified in the geometry and spatial sense content area. This content area extends beyond the low-level identification of geometric shapes to students' understanding of combinations of those shapes (including transformations at grade 12). Students are expected to show knowledge of informal constructions, demonstrations (including drawing representations), justifications, and reasoning in both formal and informal settings. Proportional thinking applied to similar figures (grades 8 and 12) and indirect measurement are an important connection in this area.

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.