

1, 9, 25, 49, 81, ...

The same rule is applied to each number in the pattern above. What is the 6th number in the pattern?

- A) 40
- B) 100
- C) 121
- D) 144
- E) 169

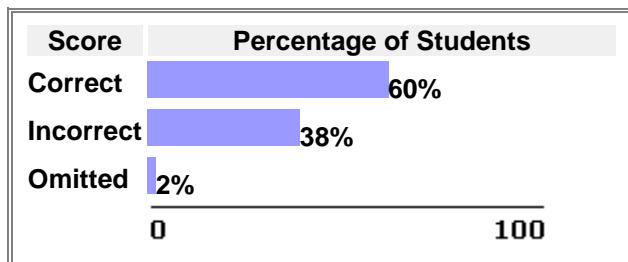
## Key

The same rule is applied to each number in the pattern above. What is the 6th number in the pattern?



- A) 40
- B) 100
- C) 121
- D) 144
- E) 169

**2005 National Performance Results**



Note:

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

**Mathematical Content Area:** Algebra (Sub content classification: )

**Mathematical Complexity:** Moderate Complexity

## **Mathematical Content Area**

### ***Algebra***

This content area focuses on students' understanding of patterns, relations, and functions; algebraic representation; variables, expressions, and operations; and equations and inequalities. At grade 4, students are expected to show knowledge of simple patterns and expressions; at grade 8 this knowledge extends to include linear equations; and at grade 12 it extends further to include quadratic and exponential equations and functions. Representational skills, such as students' ability to translate between different forms of representation (e.g., from a written description to an equation), the ability to graph and interpret points located on a coordinate system, and the ability to use algebraic properties to draw a conclusion, are assessed in this area. Students may be asked to express relationships algebraically as number sentences, equations, or inequalities; manipulate algebraic expressions; or solve and interpret algebraic equations and inequalities that are grade-level appropriate.

## **Mathematical Complexity**

### ***Moderate Complexity***

Items in the moderate-complexity category involve more flexibility of thinking and choice among alternatives than do those in the low-complexity category. They require a response that goes beyond the habitual, is not specified, and ordinarily has more than a single step. The student is expected to decide what to do, using informal methods of reasoning and problem-solving strategies, and to bring together skill and knowledge from various domains.

Description	Grade	Type	Difficulty
Determine the 6th term in a pattern	8th	Multiple Choice	Medium