

Pick a Pattern or Two

M003 scoring rubric

Math Domain

- | | | |
|---|--------------------------------------|--|
| <input checked="" type="checkbox"/> Number/Quantity | <input type="checkbox"/> Shape/Space | <input checked="" type="checkbox"/> Function |
| <input type="checkbox"/> Chance/Data | <input type="checkbox"/> Arrangement | |

Math Actions (possible weights: 0 through 4)

- | | |
|--|--|
| <input type="checkbox"/> 1 Modeling/Formulating | <input type="checkbox"/> 1 Manipulating/Transforming |
| <input type="checkbox"/> 3 Inferring/Drawing Conclusions | <input type="checkbox"/> 2 Communicating |

Math Big Ideas

- | | | |
|--|---|--|
| <input type="checkbox"/> Scale | <input checked="" type="checkbox"/> Reference Frame | <input type="checkbox"/> Representation |
| <input type="checkbox"/> Continuity | <input type="checkbox"/> Boundedness | <input type="checkbox"/> Invariance/Symmetry |
| <input type="checkbox"/> Equivalence | <input type="checkbox"/> General/Particular | <input type="checkbox"/> Contradiction |
| <input type="checkbox"/> Use of Limits | <input type="checkbox"/> Approximation | <input type="checkbox"/> Other |

- If the pattern is identified as being formed by adding the digits of each number and then squaring to get the next number, the number following 169 would be 256: $[1+6+9]^2$.
The sequence will then continue to alternate between 169 and 256.
 - Student responses should clearly articulate that the digits of each number are added, and the resulting sum is squared to get the next number.
- Here the pattern is formed by squaring each of the digits, and then adding to get the next number. Consequently the number after 20 is 4.
 - The algebraic expression should be $u^2 + t^2 + h^2$.
 - This sequence will continue to repeat, going from 4 to 20.

	partial level	full level
Modeling/ Formulating (weight: 1)	Student is not able to formulate an algebraic expression to describe the sequence in question 2b .	Student formulates a correct algebraic expression for the sequence.
Transforming/ Manipulating (weight: 1)	Student makes a computation error in either the summing or the squaring of the digits.	All sums and squares are calculated correctly.
Inferring/ Drawing Conclusions (weight: 3)	Student is able to infer and continue a pattern in only one of the two sequences. or Student comes up with an incorrect pattern for either sequence.	Both sequences are correctly determined and continued.
Communicating (weight: 2)	Either the prose or the numerical descriptions of the patterns are not totally clear and/or complete.	Both the prose and the numerical descriptions of the pattern are clear and complete.