A Very Long Hallway *P012 scoring rubric*

Math Domain

☑ Number/Quantity	☐ Shape/Space	☐ Function/Pattern
☐ Chance/Data	☐ Arrangement	

Math Actions (possible weights: 0 through 4)

2 Modeling/Formulating	2 Manipulating/Transforming
0 Inferring/Drawing Conclusions	2 Communicating

Math Big Ideas

☐ Scale	☐ Reference Frame	☑ Representation
☐ Continuity	☐ Boundedness	☐ Invariance/Symmetry
☐ Equivalence	☐ General/Particular	☐ Contradiction
☐ Use of Limits	☐ Approximation	☐ Other

While some of the earlier problems involving small numbers can be done by drawing pictures and counting, it is not practical to draw pictures when dealing with larger numbers. To do these problems efficiently, the student must recognize that the number of spaces between any two doors can be found by subtracting the door numbers.

1. 10 – 8 = 2, so the doors are 2 spaces apart.

2. 9 – 2 = 7, so the doors are 7 spaces apart.

3–4. Any pair of doors whose numbers differ by 5 will suffice, such as Door 1 and Door 6, or Door 70 and Door 75.

5. 21 – 8 = 13, so the doors are 13 spaces apart.

6. Any pair of doors whose numbers differ by 19 will suffice, such as Door 1 and Door 20. Note that this problem requires two-digit subtraction, usually with carrying.

7. 93 – 8 = 85, so the doors are 85 spaces apart.

Extension: One possible set of answers is that Doors 1 and 100 are 99 spaces apart, Doors 1 and 1,000 are 999 spaces apart, Doors 1 and 10,000 are 9,999 spaces apart, Doors 1 and 100,000 are 99,999 spaces apart, and so on.

	partial level (1 or 2)	full level (3)
Modeling/ Formulating (weight: 2)	Student correctly answers the easier questions by drawing and counting, but does not use subtraction at all, or uses it incorrectly (for example, giving answers that are consistently off by 1).	Student recognizes how subtraction can be correctly used to determine how many spaces apart two doors are.
Transforming/ Manipulating (weight: 2)	Some errors are made in arithmetic computations.	All necessary arithmetic is performed correctly.
Inferring/ Drawing Conclusions (weight: 0)		
Communicating (weight: 2)	For problems that state "Show how you get your answer," the student does not always clearly display the arithmetic computation or other procedure used to answer the question.	For problems that state "Show how you get your answer," the student clearly displays the arithmetic computation or other procedure used to answer the question.