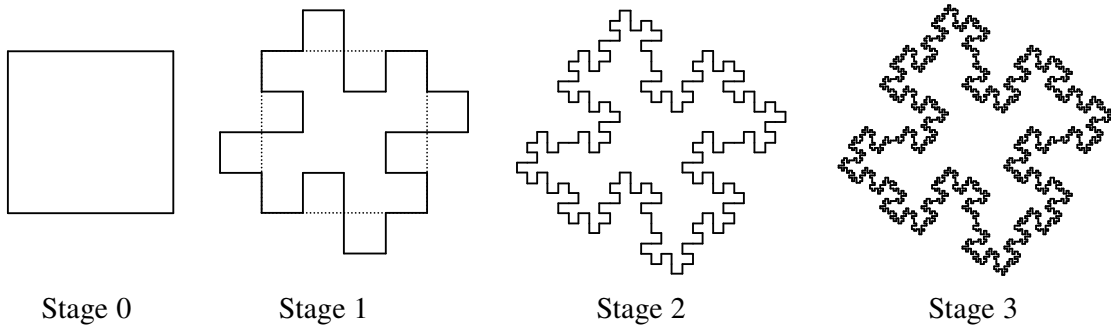# MINKOWSKI SAUSAGE

COURSE/LEVEL: *NSW Secondary High School Stage 5 Mathematics – Additional Content*

The Minkowski sausage is created from a square. A square is added alongside the second quarter of each side. At the same time, a square is removed from the third quarter of each side. This process is repeated ad infinitum. The first few stages of iteration are shown below.[*]

Stage 0   Stage 1   Stage 2   Stage 3

1.   Complete the following table.

Stage	Number of Sides	Side Length	Perimeter	Area
0	4	l	P_0	A_0
1	8×4	$\dfrac{l}{4}$	$2 \times P_0$	A_0
2				
3				
4				
n				

2.   Comment on the perimeter and area of the Minkowski sausage as the number of iterations, n, tends to infinity.

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[*] Note: At each stage of iteration, each side is replaced by a "generator", illustrated below.

side   generator