

August 30th

1, 8, 27 are the first three terms of a quadratic sequence with the  $n^{\text{th}}$  term  $An^2+Bn+C$ .

$$A + B + C = 1$$

$$A \times 2^2 + B \times 2 + C = 8 \quad \text{hence } 4A + 2B + C = 8$$

$$A \times 3^2 + B \times 3 + C = 8 \quad \text{hence } 9A + 3B + C = 27$$

Solving these gives

$$A = 6, \quad B = -11, \quad C = 6$$

So the next two terms are

$$6 \times 4^2 - 11 \times 4 + 6 = 58$$

$$6 \times 5^2 - 11 \times 5 + 6 = 101$$

The next two terms are **58 and 101**