

*Come Rain or Come Shine*

$$1 = F$$

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Diagram illustrating a sequence of blocks (blue rectangles) arranged in two rows, representing a sequence of terms in a series. The blocks are labeled with numbers and exponents below them.

Row 1 (Top):

- Block 1:  $1$
- Block 2:  $3^0$
- Block 3:  $3^7$
- Block 4:  $6^{-7}$
- Block 5:  $2^9$

Row 2 (Bottom):

- Block 1:  $1$
- Block 2:  $1$
- Block 3:  $1$
- Block 4:  $2^9$

Diagram illustrating the decomposition of the 7th power of the identity representation of the symmetric group  $S_7$  into irreducible representations. The diagram is divided into four sections by vertical lines. The labels below the bars indicate the representations involved:

- Section 1:  $1^7$  (blue bar) and  $5^7$  (purple bar).
- Section 2:  $2^7$  (blue bar) and  $5^7$  (purple bar).
- Section 3:  $3^7$  (blue bar) and  $5^7$  (purple bar).
- Section 4:  $4^7$  (blue bar) and  $5^7$  (purple bar).

Diagram illustrating the decomposition of the tensor product of two irreducible representations of  $SU(6)$  into irreducible representations of  $SU(5)$ . The diagram is divided into four sections by vertical lines. Each section shows a sequence of boxes representing the decomposition. The boxes are labeled with numbers 1 through 7, and some are labeled with 'b7'. The boxes are arranged in a staircase pattern, with the number of boxes decreasing from left to right. The labels below the boxes are:  $6^0 7$ ,  $2^7 \text{ add } b9$ ,  $5^-$ ,  $5^- 7$ ,  $1^7$ ,  $4^- 7$ ,  $b7 7$ ,  $3^- 7$ ,  $2^- 7$ ,  $5^7$ .

Diagram illustrating the decomposition of  $10^7$  into powers of 3 and 2:

- Top row:  $10^7$  is represented by a sequence of 30 blue blocks, each labeled  $3$ .
- Bottom row: The decomposition is shown as:
  - $1$  (one block)
  - $7^{07}$  (seven groups of 7 blocks)
  - $3^7$  (seven blocks)
  - $6^{-7}$  (seven blocks)
  - $2^9$  (nine blocks)

