

$$\hat{N}_3 = \sum_{j=1}^f a_j^+ a_j.$$

The image shows a mathematical equation with colorful, stylized characters. On the left, the letter 'N' is composed of several colored segments (red, purple, green, grey, dark green) and has a blue caret (^) above it. To its right is a blue subscript '3'. This is followed by an equals sign. The right side of the equation features a summation symbol (Σ) with a brown 'f' above it and a blue 'j' below it, with a blue equals sign and a blue '1' to its right. The summation symbol is filled with various colors (purple, blue, pink, green, yellow). To the right of the summation is a teal 'a' with a pink '+' sign above it, followed by a brown 'j', then a green 'a' with a pink '+' sign above it, followed by a green 'j', and finally a purple dot.