WHERE DID THAT *ONE* COME FROM?

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The number one appears from out of nowhere, or so it seems, in a variety of places in algebra. The concept of "default value" certainly applies. Providing a list such as the following may be helpful to students:

$$a + 4a = 1a + 4a = 5a$$

$$a \bullet a^3 = a^1 a^3 = a^4 \quad \text{and} \quad \frac{a^{10}}{a} = \frac{a^{10}}{a^1} = a^9$$

$$2x + 2 = 2x + 2 \bullet 1 = 2(x + 1) \quad \text{and} \quad y^2 + y = y^2 + 1 \bullet y = y(y + 1)$$

$$\frac{3}{3x+6} = \frac{1 \bullet 3}{3(x+2)} = \frac{1}{x+2} \quad \text{and} \quad \frac{a^3}{a^5} = \frac{1 \bullet a^3}{a^5} = \frac{1}{a^2}$$

$$\frac{a}{3} + b = \frac{a}{3} + \frac{b}{1} = \cdots$$