

Lesson 2: Multiplication of Numbers in Exponential Form

Classwork

In general, if x is any number and m, n are positive integers, then

$$x^m \cdot x^n = x^{m+n}$$

because

$$x^m \times x^n = \underbrace{x \cdots x}_{m \text{ times}} \times \underbrace{x \cdots x}_{n \text{ times}} = \underbrace{x \cdots x}_{m+n \text{ times}} = x^{m+n}.$$

Exercise 1

$$14^{23} \times 14^8 =$$

Exercise 2

$$-72^{10} \times -72^{13} =$$

Exercise 3

$$5^{94} \times 5^{78} =$$

Exercise 4

$$-3^9 \times -3^5 =$$

Exercise 5

Let a be a number.

$$a^{23} \cdot a^8 =$$

Exercise 6

Let f be a number.

$$f^{10} \cdot f^{13} =$$

Exercise 7

Let b be a number.

$$b^{94} \cdot b^{78} =$$

Exercise 8

Let x be a positive integer. If $-3^9 \times -3^x = -3^{14}$, what is x ?