

Multiply by Multiples of Ten



The distance from the Earth to the sun is 90,000,000 (rounded to the nearest ten million) miles. The number 90,000,000 is written here in standard form. We can use exponents to write this number in shorter form.

$$90,000,000 = 9 \times 10,000,000 = 9 \times 10^7$$

9×10^7 means to multiply $9 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$.

1. **A.** Use your calculator to multiply $9 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$. Write the number you see in the calculator's display.

B. How many zeros do you see in this number? Use what you have learned about powers of ten to explain why.

2. Complete the table. Identify any patterns you see.

Shorter Form Using Exponents	Expanded Form	Product
9×10^1	9×10	90
9×10^2	$9 \times 10 \times 10$	
9×10^3		9000
	$9 \times 10 \times 10 \times 10 \times 10$	
9×10^5		
		9,000,000
	$9 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$	