

Example 3:

Write the product in scientific notation: $5 \times 10^3 \cdot 3 \times 10^{12}$

$$\begin{array}{r} 5 \times 10^3 \cdot 3 \times 10^{12} \\ 1 \cdot 5,000 \cdot \frac{3}{100} \cdot 10^0 \\ \hline 1 \cdot \frac{15,000}{100} \\ 1 \cdot 150 \\ 1 \cdot 1.5 \times 10^2 \end{array}$$

$$\begin{array}{r} 5 \times 10^3 \cdot 3 \times 10^{12} \\ 1 \cdot 5 \times 10 \times 10 \times 10 \cdot \frac{3}{10 \times 10} \cdot 10^0 \\ \hline 1 \cdot \frac{5 \times 10 \times 10 \times 10 \times 3}{10 \times 10} \\ 1 \cdot 150 \\ 1 \cdot 1.5 \times 10^2 \end{array}$$

$$\begin{array}{r} 5 \times 10^3 \cdot 3 \times 10^{12} \\ 1 \cdot 5 \times 3 \times 10^3 \times 10^{12} \\ 1 \cdot 15 \times 10^3 \cdot 10^{12} \\ 1 \cdot 15 \times 10^1 \\ 1 \cdot 1.5 \times 10^2 \end{array}$$

You Try 3:

Write the product in scientific notation: $4 \times 10^{12} \cdot 6 \times 10^3$

$$\begin{array}{r} 4 \times 10^{12} \cdot 6 \times 10^3 \\ \frac{4}{100} \cdot 6,000 \\ \hline \frac{24,000}{100} \\ 240 \\ 2.4 \times 10^2 \end{array}$$

$$\begin{array}{r} 4 \times 10^{12} \cdot 6 \times 10^3 \\ 1 \cdot \frac{4}{10 \times 10} \cdot \frac{6}{10} \times 10 \times 10 \times 10 \times 10 \\ \hline 1 \cdot \frac{4 \times 6 \times 10 \times 10 \times 10}{10 \times 10} \\ 1 \cdot 240 \\ 1 \cdot 2.4 \times 10^2 \end{array}$$

$$\begin{array}{r} 4 \times 10^{12} \cdot 6 \times 10^3 \\ 1 \cdot 4 \times 6 \times 10^{12} \times 10^3 \\ 1 \cdot 24 \times 10^{12+3} \\ 1 \cdot 24 \times 10 \\ 1 \cdot 2.4 \times 10^2 \end{array}$$

Example 4:

Write the quotient in scientific notation: $\frac{8 \times 10^5}{4 \times 10^2}$

$$\begin{aligned} & \frac{8 \times 10^5}{4 \times 10^2} \\ & 1 \frac{8 \times 10^5}{4 \times 10^2} \\ & 1 \frac{800,000}{400} \\ & 1 2,000 \\ & 1 2 \times 10^3 \end{aligned}$$

$$\begin{aligned} & \frac{8 \times 10^5}{4 \times 10^2} \\ & 1 \frac{8 \times 10^5}{4 \times 10^2} \\ & 1 \frac{2 \times 2 \times 2 \times 10 \times 10 \times 10 \times 10 \times 10}{2 \times 2 \times 10 \times 10} \\ & 1 2 \times 10 \times 10 \times 10 \\ & 1 2 \times 10^3 \end{aligned}$$

$$\begin{aligned} & \frac{8 \times 10^5}{4 \times 10^2} \\ & 1 \frac{8 \times 10^5}{4 \times 10^2} \\ & 1 \frac{8}{4} \times 10^{5-2} \\ & 1 2 \times 10^3 \end{aligned}$$

You Try 4:

Write the quotient in scientific notation:

$$\begin{aligned} & \frac{9 \times 10^4}{3 \times 10^2} \\ & 1 \frac{9 \times 10^4}{3 \times 10^2} \\ & 1 \frac{90,000}{300} \\ & 1 300 \\ & 1 3 \times 10^2 \end{aligned}$$

$$\begin{aligned} & \frac{9 \times 10^4}{3 \times 10^2} \\ & 1 \frac{9 \times 10^4}{3 \times 10^2} \\ & 1 \frac{3 \times 3 \times 10 \times 10 \times 10 \times 10}{3 \times 10 \times 10} \\ & 1 3 \times 10 \times 10 \\ & 1 3 \times 10^2 \end{aligned}$$

$$\begin{aligned} & \frac{9 \times 10^4}{3 \times 10^2} \\ & 1 \frac{9 \times 10^4}{3 \times 10^2} \\ & 1 \frac{9}{3} \times 10^{4-2} \\ & 1 3 \times 10^2 \end{aligned}$$

Example 5:

Write the quotient in scientific notation: $\frac{8 \times 10^5}{4 \times 10^2}$

SUBTRACTION

Example 7:

Write the difference in scientific notation: 2.4×10^5 - 4.1×10^3

$\begin{array}{r} \underline{\hspace{2cm}} \\ 2.4 \times 10^5 - 4.1 \times 10^3 \\ 1 \ 240,000 - 4,100 \\ 1 \ 235,900 \\ 1 \ 2.359 \times 10^5 \end{array}$	$\begin{array}{r} \underline{\hspace{2cm}} \\ 2.4 \times 10^5 - 4.1 \times 10^3 \\ 1 \ 2.4 \times 10 \times 10 \times 10 \times 10 \times 10 - 4.1 \times 10 \times 10 \times 10 \\ 1 \ 240 \times 10 \times 10 \times 10 - 4.1 \times 10 \times 10 \times 10 \\ 1 \ 240! \ 4.1 \times 10 \times 10 \times 10 \\ 1 \ 235.9 \times 10 \times 10 \times 10 \\ 1 \ 235.9 \times 10^3 \\ 1 \ 2.359 \times 10^5 \end{array}$	$\begin{array}{r} \underline{\hspace{2cm}} \\ \underline{\hspace{2cm}} \\ 1 \ 5 \times 10^5 - 1 \ 3 \times 10^3 \\ 1 \ 5 \times 10^5 - 3 \times 10^3 \\ 1 \ 5 \times 10^3 - 3 \times 10^3 \\ 1 \ 2 \times 10^3 \\ 235.9 \times 10^3 \\ 2.359 \times 10^5 \end{array}$
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You Try 7:

Write the product in scientific notation: 1.4×10^3 - 2×10^2

$\begin{array}{r} \underline{\hspace{2cm}} \\ 1.4 \times 10^3 - 2 \times 10^2 \\ 1 \ 1,400 - 200 \\ 1 \ 1,200 \\ 1 \ 1.2 \times 10^3 \end{array}$	$\begin{array}{r} \underline{\hspace{2cm}} \\ 1.4 \times 10^3 - 2 \times 10^2 \\ 1 \ 1.4 \times 10 \times 10 \times 10 - 2 \times 10 \times 10 \\ 1 \ 14 \times 10 \times 10 - 2 \times 10 \times 10 \\ 1 \ 14! \ 2 \times 10 \times 10 \\ 1 \ 12 \times 10 \times 10 \\ 1 \ 12 \times 10^2 \\ 1 \ 1.2 \times 10^3 \end{array}$	$\begin{array}{r} \underline{\hspace{2cm}} \\ \underline{\hspace{2cm}} \\ 1 \ 1.4 \times 10^3 - 2 \times 10^2 \\ 1 \ 1.4 \times 10 \times 10^2 - 2 \times 10^2 \\ 1 \ 14 \times 10^2 - 2 \times 10^2 \\ 1 \ 14! \ 2 \times 10^2 \\ 1 \ 12 \times 10^2 \\ 1 \ 1.2 \times 10^3 \end{array}$
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