

8.4b Warm-Up

Write the number in scientific notation.

1. 100,500 1.005×10^5

2. 0.0203 2.03×10^{-2}

3. Write 3.06×10^7 in standard form.

30,600,000

Order numbers.

1. Order 103,400,000, 7.8×10^8 , and 80,760,000 from least to greatest.

$$\begin{array}{r} \cancel{103,400,000} \\ \cancel{80,760,000} \\ 780,000,000 \end{array} \quad \begin{array}{r} 80,760,000 \\ 103,400,000 \\ 7.8 \times 10^8 \end{array}$$

2. Order 2.7×10^5 , 3.401×10^4 , and 27,500 from least to greatest.

$$\begin{array}{r} 2.7 \times 10^5 \\ \cancel{3.401 \times 10^4} \\ \cancel{2.75 \times 10^4} \end{array} \quad \begin{array}{r} 27,500 \\ 3.401 \times 10^4 \\ 2.7 \times 10^5 \end{array}$$

Evaluate the expression. Write your answer in scientific notation.

a. $(8.5 \times 10^2)(1.7 \times 10^6)$

$$\begin{aligned} & (8.5 \times 1.7)(10^2 \times 10^6) \\ & 14.45 \times 10^8 \\ & (1.445 \times 10^1) \times 10^8 \\ & 1.445 \times 10^9 \end{aligned}$$

b. $(1.5 \times 10^{-3})^2$

$$\begin{aligned} & 1.5^2 \times 10^{-6} \\ & 2.25 \times 10^{-6} \end{aligned}$$

c. $\frac{1.2 \times 10^4}{1.6 \times 10^{-3}}$

$4 + +3$

$$\begin{aligned} & \frac{1.2}{1.6} \times \frac{10^4}{10^{-3}} \\ & .75 \times 10^7 \\ & 7.5 \times 10^{-1} \times 10^7 \\ & 7.5 \times 10^6 \end{aligned}$$

Evaluate the expression. Write your answer in scientific notation.

3. $(1.3 \times 10^{-5})^2$

$$1.3 \times 10^{-5} \cdot 1.3 \times 10^{-5}$$

$$1.3 \cdot 1.3 \times 10^{-5} \cdot 10^{-5}$$

$$4.69 \times 10^{-10}$$

4. $\frac{4.5 \times 10^5}{1.5 \times 10^{-2}}$ $5-2$

$$\frac{4.5}{1.5} \times \frac{10^5}{10^{-2}}$$

$$3 \times 10^7$$

5. $(1.1 \times 10^7)(4.2 \times 10^2)$

$$1.1 \times 4.2 \cdot 10^7 \cdot 10^2$$

$$4.62 \times 10^9$$

Order 93,000,000, 9.2×10^6 , and 9,028,000 from least to greatest.

93,000,000
~~9,028,000~~
~~9,200,000~~

9,028,000
 9.2×10^6
93,000,000

Evaluate the expression. Write your answer in scientific notation.

a. $(5.7 \times 10^3)(2.6 \times 10^4)$

b. $(2.4 \times 10^{-4})^2$

c. $\frac{2.4 \times 10^5}{2.5 \times 10^{-4}}$

$\begin{array}{r} 2.4 \\ 2.5 \end{array} \times \frac{10^5}{10^{-4}} \quad 5 + 4$
 96×10^9
 $9.6 \times 10^{-1} \times 10^9$
 9.6×10^8

The radius of a red blood cell is about 4.5×10^{-6} meter. The radius of Mycoplasma bacteria is about 1.25×10^{-8} meter.

Find the ratio of the radius of a red blood cell to the radius of Mycoplasma bacteria. What does this ratio tell you?

$$\frac{4.5 \times 10^{-6}}{1.25 \times 10^{-8}} \quad -6 + 8$$
$$360:1$$

$$\frac{4.5}{1.25} \times \frac{10^{-6}}{10^{-8}}$$
$$3.6 \times 10^2$$

red blood cell
is 360 x's as
big as bacteria.

Homework:

pp 515-516

#'s 29-32, 34-38 E,
39-48, 52-54