

Name: _____

Date: _____

Notes

Algebra Section 8.4

Pages 512-518

Goal: “You will read and write numbers in scientific notation”



Vocabulary:

Scientific Notation: A number written in the form $\underline{c \times 10^n}$ where $1 \leq c < 10$ and n is an integer.

Notes:

If the exponent is positive it tells you that the number is greater than 1.

If the exponent is negative it tells you that the number is less than 1.

Number	Standard Form	Scientific Notation
Two million	2,000,000	2×10^6
Five thousandths	0.005	5×10^{-3}

Write the following numbers in scientific notation:

Ex: $42,590,000 = 4.259 \times 10^7$

Ex: $0.0000574 = 5.74 \times 10^{-5}$

Ex: $539,000 = 5.39 \times 10^5$

Ex: $267,500,000 = 2.675 \times 10^8$

Ex: $0.000486 = 4.86 \times 10^{-5}$

Write the following numbers in standard form:

Ex: $2.0075 \times 10^6 = \underline{2,007,500}$

Ex: $1.685 \times 10^{-4} = \underline{0.0001685}$

Ex: $7.0235 \times 10^5 = \underline{702,350}$

Ex: $3.096 \times 10^{-7} = \underline{0.0000003096}$

Ex: $4.5 \times 10^{-4} = \underline{0.00045}$

Order numbers in scientific notation:

Ex: Order 103,400,000; 7.8×10^8 ; 80,760,000 from least to greatest.

80,760,000; 103,400,000; 7.8×10^8

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

9,028,000; 9.2×10^6 ; 93,000,000

Multiply or divide numbers in scientific notation:

Ex: $(8.5 \times 10^2)(1.7 \times 10^6)$

1.445×10^9

Ex: $(1.5 \times 10^{-3})^2$

2.25×10^{-6}

Ex: $(5.7 \times 10^3)(2.6 \times 10^4)$

1.482×10^{11}

Ex: $(2.4 \times 10^{-4})^2$

5.76×10^{-8}

Ex: $(1.3 \times 10^{-5})^2$

1.69×10^{-10}

Ex: $(1.1 \times 10^7)(4.2 \times 10^2)$

4.62×10^9

Ex: $\frac{1.2 \times 10^4}{1.6 \times 10^{-3}}$

7.5×10^6

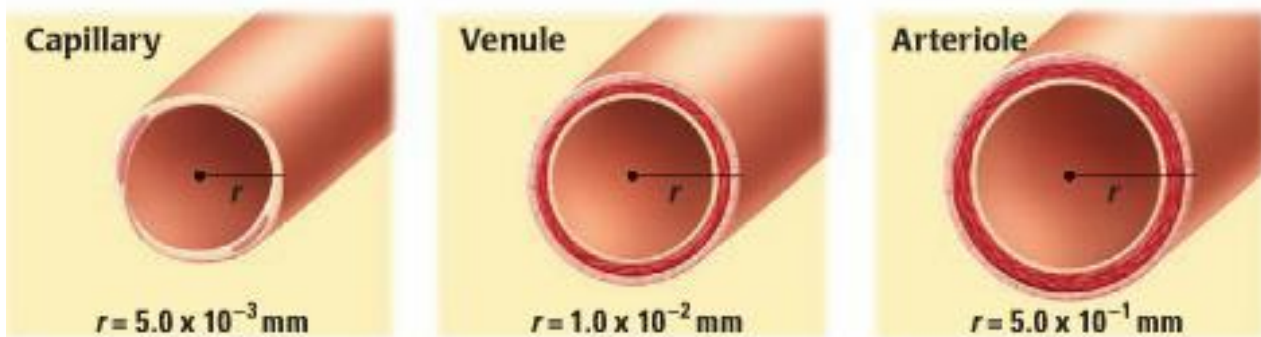
Ex: $\frac{4.5 \times 10^5}{1.5 \times 10^{-2}}$

3×10^7

Ex: $\frac{2.4 \times 10^5}{2.5 \times 10^{-4}}$

9.6×10^8

Ex: Blood flow is partially controlled by the cross-sectional area of the blood vessel through which the blood is traveling. Three types of blood vessels are venules, capillaries and arterioles.



a) Let r_1 be the radius of a venule, and let r_2 be the radius of a capillary. Find the ratio of r_1 to r_2 . What does the ratio tell you? **The ratio tells you that the radius of the venule is twice the radius of the capillary.**

b) Let A_1 be the cross-sectional area of a venule and A_2 be the cross-sectional area of a capillary. Find the ratio of A_1 to A_2 . What does the ratio tell you?

The ratio tells you that the cross-sectional area of the venule is four times the cross-sectional area of the capillary.