[1-10B]

Addition and Subtraction

Before numbers in scientific notation can be added or subtracted, the exponents must be equal.

Not equal — Equal

$$(3.4 \times 10^2) + (4.57 \times 10^3) = (0.34 \times 10^3) + (4.57 \times 10^3)$$

The decimal is moved to the left to increase the exponent.

$$= (0.34 + 4.57) \times 10^3$$

$$= 4.91 \times 10^3$$

$$\begin{array}{r} 0.34 \\ +\ 4.57 \\ \hline 4.91 \end{array}$$

Perform the following operations and express the answers in scientific notation.

a. $(1.2 \times 10^5) + (5.35 \times 10^6)$

5.35
0.12

$0.12 \times 10^6 + 5.35 \times 10^6 = 5.47 \times 10^6$

b. $(6.91 \times 10^{-2}) + (2.4 \times 10^{-3})$

6.91
+0.24

$6.91 \times 10^{-2} + 0.24 \times 10^{-2} = 7.15 \times 10^{-2}$

c. $(9.70 \times 10^6) + (8.3 \times 10^5)$

1
9.70
+ .83
10.53

$9.7 \times 10^6 + 0.83 \times 10^6 = 10.53 \times 10^6$

$= 1.053 \times 10^7$

d. $(3.67 \times 10^2) - (1.6 \times 10^1)$

3.67
-0.16
3.51

$367 \times 10^2 - 0.16 \times 10^2 = 3.51 \times 10^2$

e. $(8.41 \times 10^{-5}) - (7.9 \times 10^{-6})$

7 13 1
8.41
-0.79
7.62

$8.41 \times 10^{-5} - 0.79 \times 10^{-5} = 7.62 \times 10^{-5}$

f. $(1.33 \times 10^5) - (4.9 \times 10^4)$

0 12 1
1.33
-0.49
.84

$1.33 \times 10^5 - 0.49 \times 10^5$

0.84×10^5

8.4×10^4