



Astronomers rely on scientific notation in order to work with 'big' things in the universe. The rules for using this notation are pretty straightforward,

The following problems involve the addition and subtraction of numbers expressed in Scientific Notation. For example:

$$\begin{aligned} 1.34 \times 10^8 + 4.5 \times 10^6 &= 134.0 \times 10^6 + 4.5 \times 10^6 \\ &= (134.0 + 4.5) \times 10^6 \\ &= 138.5 \times 10^6 \\ &= 1.385 \times 10^8 \end{aligned}$$

1) $1.34 \times 10^{14} + 1.3 \times 10^{12} =$

2) $9.7821 \times 10^{-17} + 3.14 \times 10^{-18} =$

3) $4.29754 \times 10^3 + 1.34 \times 10^2 =$

4) $7.523 \times 10^{25} - 6.32 \times 10^{22} + 1.34 \times 10^{24} =$

5) $6.5 \times 10^{-67} - 3.1 \times 10^{-65} =$

6) $3.872 \times 10^{11} - 2.874 \times 10^{13} =$

7) $8.713 \times 10^{-15} + 8.713 \times 10^{-17} =$

8) $1.245 \times 10^2 - 5.1 \times 10^{-1} =$

9) $3.64567 \times 10^{137} - 4.305 \times 10^{135} + 1.856 \times 10^{136} =$

10) $1.765 \times 10^4 - 3.492 \times 10^2 + 3.159 \times 10^{-1} =$

Answer Key:

- 1) $1.34 \times 10^{14} + 1.3 \times 10^{12} = (134 + 1.3) \times 10^{12} = \mathbf{1.353 \times 10^{14}}$
- 2) $9.7821 \times 10^{-17} + 3.14 \times 10^{-18} = (97.821 + 3.14) \times 10^{-18} = \mathbf{1.00961 \times 10^{-16}}$
- 3) $4.29754 \times 10^3 + 1.34 \times 10^2 = (42.9754 + 1.34) \times 10^2 = \mathbf{4.43154 \times 10^3}$
- 4) $7.523 \times 10^{25} - 6.32 \times 10^{22} + 1.34 \times 10^{24} = (7523 - 6.32 + 134) \times 10^{22} = \mathbf{7.65068 \times 10^{25}}$
- 5) $6.5 \times 10^{-67} - 3.1 \times 10^{-65} = (6.5 - 310) \times 10^{-67} = \mathbf{-3.035 \times 10^{-65}}$
- 6) $3.872 \times 10^{11} - 2.874 \times 10^{13} = (3.872 - 287.4) \times 10^{11} = \mathbf{2.83528 \times 10^{13}}$
- 7) $8.713 \times 10^{-15} + 8.713 \times 10^{-17} = (871.3 + 8.713) \times 10^{-17} = \mathbf{8.80013 \times 10^{-15}}$
- 8) $1.245 \times 10^2 - 5.1 \times 10^{-1} = (1245.0 - 5.1) \times 10^{-1} = \mathbf{1.2399 \times 10^2}$
- 9) $3.64567 \times 10^{137} - 4.305 \times 10^{135} + 1.856 \times 10^{136} = (364.567 - 4.305 + 18.56) \times 10^{135} = \mathbf{3.78822 \times 10^{137}}$
- 10) $1.765 \times 10^4 - 3.492 \times 10^2 + 3.159 \times 10^{-1} = (17650.0 - 3492 + 3.159) \times 10^{-1} = \mathbf{1.4161159 \times 10^4}$