

Example 8: Express the following numbers in standard form.

- (i) 0.000035 (ii) 4050000

Solution: (i) $0.000035 = 3.5 \times 10^{-5}$ (ii) $4050000 = 4.05 \times 10^6$

Example 9: Express the following numbers in usual form.

- (i) 3.52×10^5 (ii) 7.54×10^{-4} (iii) 3×10^{-5}

Solution:

(i) $3.52 \times 10^5 = 3.52 \times 100000 = 352000$

(ii) $7.54 \times 10^{-4} = \frac{7.54}{10^4} = \frac{7.54}{10000} = 0.000754$

(iii) $3 \times 10^{-5} = \frac{3}{10^5} = \frac{3}{100000} = 0.00003$

Again we need to convert numbers in standard form into a numbers with the same exponents.

EXERCISE 12.2



1. Express the following numbers in standard form.

- (i) 0.0000000000085 (ii) 0.00000000000942
 (iii) 6020000000000000 (iv) 0.00000000837
 (v) 31860000000

2. Express the following numbers in usual form.

- (i) 3.02×10^{-6} (ii) 4.5×10^4 (iii) 3×10^{-8}
 (iv) 1.0001×10^9 (v) 5.8×10^{12} (vi) 3.61492×10^6

3. Express the number appearing in the following statements in standard form.

- (i) 1 micron is equal to $\frac{1}{1000000}$ m.
 (ii) Charge of an electron is 0.000,000,000,000,000,16 coulomb.
 (iii) Size of a bacteria is 0.0000005 m
 (iv) Size of a plant cell is 0.00001275 m
 (v) Thickness of a thick paper is 0.07 mm

4. In a stack there are 5 books each of thickness 20mm and 5 paper sheets each of thickness 0.016 mm. What is the total thickness of the stack.

WHAT HAVE WE DISCUSSED?

1. Numbers with negative exponents obey the following laws of exponents.

(a) $a^m \times a^n = a^{m+n}$ (b) $a^m \div a^n = a^{m-n}$ (c) $(a^m)^n = a^{mn}$

(d) $a^m \times b^m = (ab)^m$ (e) $a^0 = 1$ (f) $\frac{a^m}{b^m} = \left(\frac{a}{b}\right)^m$

2. Very small numbers can be expressed in standard form using negative exponents.