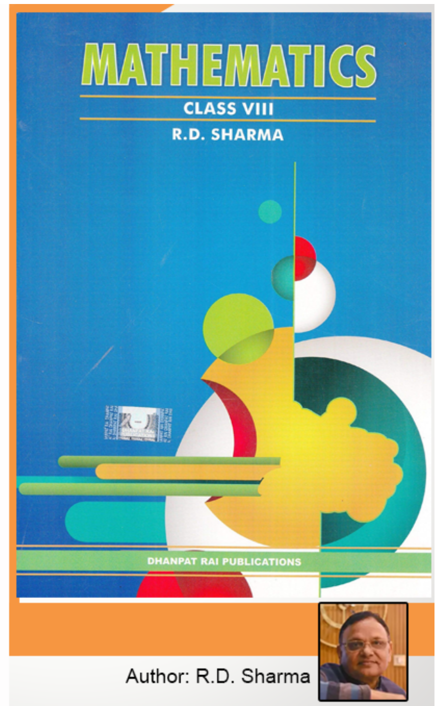
Class 8 - Chapter 2 Powers



RD Sharma Solutions for Class 8 Maths Chapter 2–Powers

Class 8: Maths Chapter 2 solutions. Complete Class 8 Maths Chapter 2 Notes.

RD Sharma Solutions for Class 8 Maths Chapter 2–Powers

RD Sharma 8th Maths Chapter 2, Class 8 Maths Chapter 2 solutions

EXERCISE 2.1 PAGE NO: 2.8

1. Express each of the following as a rational number of the form p/q, where p and q are integers and q ≠ 0:

(i) 2^{-3}

(ii) $(-4)^{-2}$

(iii) $1/(3)^{-2}$

(iv) $(1/2)^{-5}$

(v) $(2/3)^{-2}$

Solution:

(i) $2^{-3} = 1/2^3 = 1/2\times2\times2 = 1/8$ (we know that $a^{-n} = 1/a^n$)

(ii) $(-4)^{-2} = 1/-4^2 = 1/-4\times-4 = 1/16$ (we know that $a^{-n} = 1/a^n$)

(iii) $1/(3)^{-2} = 3^2 = 3\times3 = 9$ (we know that $1/a^{-n} = a^n$)

(iv) $(1/2)^{-5} = 2^5 / 1^5 = 2\times2\times2\times2\times2 = 32$ (we know that $a^{-n} = 1/a^n$)

(v) $(2/3)^{-2} = 3^2 / 2^2 = 3\times3 / 2\times2 = 9/4$ (we know that $a^{-n} = 1/a^n$)

2. Find the values of each of the following:

(i) $3^{-1} + 4^{-1}$

(ii) $(3^0 + 4^{-1}) \times 2^2$

(iii) $(3^{-1} + 4^{-1} + 5^{-1})^0$

(iv) $((1/3)^{-1} – (1/4)^{-1})^{-1}$

Solution:

(i) $3^{-1} + 4^{-1}$

$1/3 + 1/4$ (we know that $a^{-n} = 1/a^n$)

LCM of 3 and 4 is 12

$(1\times4 + 1\times3)/12$

$(4+3)/12$

$7/12$

(ii) $(3^0 + 4^{-1}) \times 2^2$

(1 + 1/4) × 4 (we know that $a^{-n} = 1/a^n$, $a^0 = 1$)

LCM of 1 and 4 is 4

(1×4 + 1×1)/4 × 4

(4+1)/4 × 4

5/4 × 4

5

(iii) $(3^{-1} + 4^{-1} + 5^{-1})^0$

(We know that $a^0 = 1$)

$(3^{-1} + 4^{-1} + 5^{-1})^0 = 1$

(iv) $((1/3)^{-1} – (1/4)^{-1})^{-1}$

$(3^1 – 4^1)^{-1}$ (we know that $1/a^{-n} = a^n$, $a^{-n} = 1/a^n$)

$(3-4)^{-1}$

$(-1)^{-1}$

1/-1 = -1

3. Find the values of each of the following:

(i) $(1/2)^{-1} + (1/3)^{-1} + (1/4)^{-1}$

(ii) $(1/2)^{-2} + (1/3)^{-2} + (1/4)^{-2}$

(iii) $(2^{-1} \times 4^{-1}) \div 2^{-2}$

(iv) $(5^{-1} \times 2^{-1}) \div 6^{-1}$

Solution:

(i) $(1/2)^{-1} + (1/3)^{-1} + (1/4)^{-1}$

$2^1 + 3^1 + 4^1$ (we know that $1/a^{-n} = a^n$)

$2+3+4 = 9$

(ii) $(1/2)^{-2} + (1/3)^{-2} + (1/4)^{-2}$

$2^2 + 3^2 + 4^2$ (we know that $1/a^{-n} = a^n$)

$2\times2 + 3\times3 + 4\times4$

$4+9+16 = 29$

(iii) $(2^{-1} \times 4^{-1}) \div 2^{-2}$

$(1/2^1 \times 1/4^1) / (1/2^2)$ (we know that $a^{-n} = 1/a^n$)

$(1/2 \times 1/4) \times 4/1$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$1/2$

(iv) $(5^{-1} \times 2^{-1}) \div 6^{-1}$

$(1/5^1 \times 1/2^1) / (1/6^1)$ (we know that $a^{-n} = 1/a^n$)

$(1/5 \times 1/2) \times 6/1$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$3/5$

4. Simplify:

(i) $(4^{-1} \times 3^{-1})^2$

(ii) $(5^{-1} \div 6^{-1})^3$

(iii) $(2^{-1} + 3^{-1})^{-1}$

(iv) $(3^{-1} \times 4^{-1})^{-1} \times 5^{-1}$

Solution:

(i) $(4^{-1} \times 3^{-1})^2$ (we know that $a^{-n} = 1/a^n$)

$(1/4 \times 1/3)^2$

$(1/12)^2$

$(1\times1 / 12\times12)$

1/144

(ii) $(5^{-1} \div 6^{-1})^3$

$((1/5) / (1/6))^3$ (we know that $a^{-n} = 1/a^n$)

$((1/5) \times 6)^3$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$(6/5)^3$

6×6×6 / 5×5×5

216/125

(iii) $(2^{-1} + 3^{-1})^{-1}$

$(1/2 + 1/3)^{-1}$ (we know that $a^{-n} = 1/a^n$)

LCM of 2 and 3 is 6

$((1\times3 + 1\times2)/6)^{-1}$

$(5/6)^{-1}$

6/5

(iv) $(3^{-1} \times 4^{-1})^{-1} \times 5^{-1}$

$(1/3 \times 1/4)^{-1} \times 1/5$ (we know that $a^{-n} = 1/a^n$)

$(1/12)^{-1} \times 1/5$

12/5

5. Simplify:

(i) $(3^2 + 2^2) \times (1/2)^3$

(ii) $(3^2 - 2^2) \times (2/3)^{-3}$

(iii) $((1/3)^{-3} - (1/2)^{-3}) \div (1/4)^{-3}$

(iv) $(2^2 + 3^2 - 4^2) \div (3/2)^2$

Solution:

(i) $(3^2 + 2^2) \times (1/2)^3$

$(9 + 4) \times 1/8 = 13/8$

(ii) $(3^2 – 2^2) \times (2/3)^{-3}$

$(9-4) \times (3/2)^3$

$5 \times (27/8)$

$135/8$

(iii) $((1/3)^{-3} – (1/2)^{-3}) \div (1/4)^{-3}$

$(3^3 – 2^3) \div 4^3$ (we know that $1/a^{-n} = a^n$)

$(27-8) \div 64$

$19 \times 1/64$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$19/64$

(iv) $(2^2 + 3^2 – 4^2) \div (3/2)^2$

$(4 + 9 – 16) \div (9/4)$

$(-3) \times 4/9$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$-4/3$

6. By what number should 5^{-1} be multiplied so that the product may be equal to $(-7)^{-1}$?

Solution:

Let us consider a number x

So, $5^{-1} \times x = (-7)^{-1}$

$1/5 \times x = 1/-7$

$x = (-1/7) / (1/5)$

$= (-1/7) \times (5/1)$

$= -5/7$

7. By what number should $(1/2)^{-1}$ be multiplied so that the product may be equal to $(-4/7)^{-1}$?

Solution:

Let us consider a number x

So, $(1/2)^{-1} \times x = (-4/7)^{-1}$

$1/(1/2) \times x = 1/(-4/7)$

$x = (-7/4) / (2/1)$

$= (-7/4) \times (1/2)$

$= -7/8$

8. By what number should $(-15)^{-1}$ be divided so that the quotient may be equal to $(-5)^{-1}$?

Solution:

Let us consider a number x

So, $(-15)^{-1} \div x = (-5)^{-1}$

$1/-15 \times 1/x = 1/-5$

$1/x = (1 \times -15)/-5$

$1/x = 3$

$x = 1/3$

EXERCISE 2.2 PAGE NO: 2.18

1. Write each of the following in exponential form:

(i) $(3/2)^{-1} \times (3/2)^{-1} \times (3/2)^{-1} \times (3/2)^{-1}$

(ii) $(2/5)^{-2} \times (2/5)^{-2} \times (2/5)^{-2}$

Solution:

(i) $(3/2)^{-1} \times (3/2)^{-1} \times (3/2)^{-1} \times (3/2)^{-1}$

$(3/2)^{-4}$ (we know that $a^{-n} = 1/a^n$, $a^n = a \times a \ldots n$ times)

(ii) $(2/5)^{-2} \times (2/5)^{-2} \times (2/5)^{-2}$

$(2/5)^{-6}$ (we know that $a^{-n} = 1/a^n$, $a^n = a \times a \ldots n$ times)

2. Evaluate:

(i) 5^{-2}

(ii) $(-3)^{-2}$

(iii) $(1/3)^{-4}$

(iv) $(-1/2)^{-1}$

Solution:

(i) 5^{-2}

$1/5^2 = 1/25$ (we know that $a^{-n} = 1/a^n$)

(ii) $(-3)^{-2}$

$(1/-3)^2 = 1/9$ (we know that $a^{-n} = 1/a^n$)

(iii) $(1/3)^{-4}$

$3^4 = 81$ (we know that $1/a^{-n} = a^n$)

(iv) $(-1/2)^{-1}$

$-2^1 = -2$ (we know that $1/a^{-n} = a^n$)

3. Express each of the following as a rational number in the form p/q:

(i) 6^{-1}

(ii) $(-7)^{-1}$

(iii) $(1/4)^{-1}$

(iv) $(-4)^{-1} \times (-3/2)^{-1}$

(v) $(3/5)^{-1} \times (5/2)^{-1}$

Solution:

(i) 6^{-1}

$1/6^1 = 1/6$ (we know that $a^{-n} = 1/a^n$)

(ii) $(-7)^{-1}$

$1/-7^1 = -1/7$ (we know that $a^{-n} = 1/a^n$)

(iii) $(1/4)^{-1}$

$4^1 = 4$ (we know that $1/a^{-n} = a^n$)

(iv) $(-4)^{-1} \times (-3/2)^{-1}$

$1/-4^1 \times (2/-3)^1$ (we know that $a^{-n} = 1/a^n$, $1/a^{-n} = a^n$)

$1/-2 \times -1/3$

$1/6$

(v) $(3/5)^{-1} \times (5/2)^{-1}$

$(5/3)^1 \times (2/5)^1$

$5/3 \times 2/5$

$2/3$

4. Simplify:

(i) $(4^{-1} \times 3^{-1})^2$

(ii) $(5^{-1} \div 6^{-1})^3$

(iii) $(2^{-1} + 3^{-1})^{-1}$

(iv) $(3^{-1} \times 4^{-1})^{-1} \times 5^{-1}$

(v) $(4^{-1} – 5^{-1}) \div 3^{-1}$

Solution:

(i) $(4^{-1} \times 3^{-1})^2$

$(1/4 \times 1/3)^2$ (we know that $a^{-n} = 1/a^n$)

$(1/12)^2$

1/144

(ii) $(5^{-1} \div 6^{-1})^3$

$(1/5 \div 1/6)^3$ (we know that $a^{-n} = 1/a^n$)

$(1/5 \times 6)^3$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$(6/5)^3$

216/125

(iii) $(2^{-1} + 3^{-1})^{-1}$

$(1/2 + 1/3)^{-1}$ (we know that $a^{-n} = 1/a^n$)

LCM of 2 and 3 is 6

$((3+2)/6)^{-1}$

$(5/6)^{-1}$ (we know that $1/a^{-n} = a^n$)

6/5

(iv) $(3^{-1} \times 4^{-1})^{-1} \times 5^{-1}$

$(1/3 \times 1/4)^{-1} \times 1/5$ (we know that $a^{-n} = 1/a^n$)

$(1/12)^{-1} \times 1/5$ (we know that $1/a^{-n} = a^n$)

$12 \times 1/5$

12/5

(v) $(4^{-1} – 5^{-1}) \div 3^{-1}$

$(1/4 – 1/5) \div 1/3$ (we know that $a^{-n} = 1/a^n$)

LCM of 4 and 5 is 20

$(5-4)/20 \times 3/1$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$1/20 \times 3$

$3/20$

5. Express each of the following rational numbers with a negative exponent:

(i) $(1/4)^3$

(ii) 3^5

(iii) $(3/5)^4$

(iv) $((3/2)^4)^{-3}$

(v) $((7/3)^4)^{-3}$

Solution:

(i) $(1/4)^3$

$(4)^{-3}$ (we know that $1/a^n = a^{-n}$)

(ii) 3^5

$(1/3)^{-5}$ (we know that $1/a^n = a^{-n}$)

(iii) $(3/5)^4$

$(5/3)^{-4}$ (we know that $(a/b)^{-n} = (b/a)^n$)

(iv) $((3/2)^4)^{-3}$

$(3/2)^{-12}$ (we know that $(a^n)^m = a^{nm}$)

(v) $((7/3)^4)^{-3}$

$(7/3)^{-12}$ (we know that $(a^n)^m = a^{nm}$)

6. Express each of the following rational numbers with a positive exponent:

(i) $(3/4)^{-2}$

(ii) $(5/4)^{-3}$

(iii) $4^3 \times 4^{-9}$

(iv) $((4/3)^{-3})^{-4}$

(v) $((3/2)^4)^{-2}$

Solution:

(i) $(3/4)^{-2}$

$(4/3)^2$ (we know that $(a/b)^{-n} = (b/a)^n$)

(ii) $(5/4)^{-3}$

$(4/5)^3$ (we know that $(a/b)^{-n} = (b/a)^n$)

(iii) $4^3 \times 4^{-9}$

$(4)^{3-9}$ (we know that $a^n \times a^m = a^{n+m}$)

4^{-6}

$(1/4)^6$ (we know that $1/a^n = a^{-n}$)

(iv) $((4/3)^{-3})^{-4}$

$(4/3)^{12}$ (we know that $(a^n)^m = a^{nm}$)

(v) $((3/2)^4)^{-2}$

$(3/2)^{-8}$ (we know that $(a^n)^m = a^{nm}$)

$(2/3)^8$ (we know that $1/a^n = a^{-n}$)

7. Simplify:

(i) $((1/3)^{-3} - (1/2)^{-3}) \div (1/4)^{-3}$

(ii) $(3^2 - 2^2) \times (2/3)^{-3}$

(iii) $((1/2)^{-1} \times (-4)^{-1})^{-1}$

(iv) $(((-1/4)^2)^{-2})^{-1}$

(v) $((2/3)^2)^3 \times (1/3)^{-4} \times 3^{-1} \times 6^{-1}$

Solution:

(i) $((1/3)^{-3} – (1/2)^{-3}) \div (1/4)^{-3}$

$(3^3 – 2^3) \div 4^3$ (we know that $1/a^n = a^{-n}$)

$(27-8) \div 64$

$19 \div 64$

$19 \times 1/64$ (we know that $1/a \div 1/b = 1/a \times b/1$)

19/64

(ii) $(3^2 – 2^2) \times (2/3)^{-3}$

$(9 – 4) \times (3/2)^3$ (we know that $1/a^n = a^{-n}$)

$5 \times (27/8)$

135/8

(iii) $((1/2)^{-1} \times (-4)^{-1})^{-1}$

$(2^1 \times (1/-4))^{-1}$ (we know that $1/a^n = a^{-n}$)

$(1/-2)^{-1}$ (we know that $1/a^n = a^{-n}$)

-2^1

-2

(iv) $(((-1/4)^2)^{-2})^{-1}$

$((-1/16)^{-2})^{-1}$ (we know that $1/a^n = a^{-n}$)

$((-16)^2)^{-1}$ (we know that $1/a^n = a^{-n}$)

$(256)^{-1}$ (we know that $1/a^n = a^{-n}$)

1/256

(v) $((2/3)^2)^3 \times (1/3)^{-4} \times 3^{-1} \times 6^{-1}$

$(4/9)^3 \times 3^4 \times 1/3 \times 1/6$ (we know that $1/a^n = a^{-n}$)

$(64/729) \times 81 \times 1/3 \times 1/6$

$(64/729) \times 27 \times 1/6$

$32/729 \times 27 \times 1/3$

$32/729 \times 9$

$32/81$

8. By what number should 5^{-1} be multiplied so that the product may be equal to $(-7)^{-1}$?

Solution:

Let us consider a number x

So, $5^{-1} \times x = (-7)^{-1}$

$1/5 \times x = 1/-7$ (we know that $1/a^n = a^{-n}$)

$x = (-1/7) / (1/5)$

$= (-1/7) \times (5/1)$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$= -5/7$

9. By what number should $(1/2)^{-1}$ be multiplied so that the product may be equal to $(-4/7)^{-1}$?

Solution:

Let us consider a number x

So, $(1/2)^{-1} \times x = (-4/7)^{-1}$

$1/(1/2) \times x = 1/(-4/7)$ (we know that $1/a^n = a^{-n}$)

$x = (-7/4) / (2/1)$

$= (-7/4) \times (1/2)$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$= -7/8$

10. By what number should $(-15)^{-1}$ be divided so that the quotient may be equal to $(-5)^{-1}$?

Solution:

Let us consider a number x

So, $(-15)^{-1} \div x = (-5)^{-1}$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$1/-15 \times 1/x = 1/-5$ (we know that $1/a^n = a^{-n}$)

$1/x = (1\times-15)/-5$

$1/x = 3$

$x = 1/3$

11. By what number should $(5/3)^{-2}$ be multiplied so that the product may be $(7/3)^{-1}$?

Solution:

Let us consider a number x

So, $(5/3)^{-2} \times x = (7/3)^{-1}$

$1/(5/3)^2 \times x = 1/(7/3)$ (we know that $1/a^n = a^{-n}$)

$x = (3/7) / (3/5)^2$

$= (3/7) / (9/25)$

$= (3/7) \times (25/9)$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$= (1/7) \times (25/3)$

$= 25/21$

12. Find x, if

(i) $(1/4)^{-4} \times (1/4)^{-8} = (1/4)^{-4x}$

Solution:

$(1/4)^{-4} \times (1/4)^{-8} = (1/4)^{-4x}$

$(1/4)^{-4-8} = (1/4)^{-4x}$ (we know that $a^n \times a^m = a^{n+m}$)

$(1/4)^{-12} = (1/4)^{-4x}$

When the bases are same we can directly equate the coefficients

$-12 = -4x$

$x = -12/-4$

$= 3$

(ii) $(-1/2)^{-19} \div (-1/2)^{8} = (-1/2)^{-2x+1}$

Solution:

$(-1/2)^{-19} \div (-1/2)^{8} = (-1/2)^{-2x+1}$

$(1/2)^{-19-8} = (1/2)^{-2x+1}$ (we know that $a^n \div a^m = a^{n-m}$)

$(1/2)^{-27} = (1/2)^{-2x+1}$

When the bases are same we can directly equate the coefficients

$-27 = -2x+1$

$-2x = -27-1$

$x = -28/-2$

$= 14$

(iii) $(3/2)^{-3} \times (3/2)^{5} = (3/2)^{2x+1}$

Solution:

$(3/2)^{-3} \times (3/2)^{5} = (3/2)^{2x+1}$

$(3/2)^{-3+5} = (3/2)^{2x+1}$ (we know that $a^n \times a^m = a^{n+m}$)

$(3/2)^{2} = (3/2)^{2x+1}$

When the bases are same we can directly equate the coefficients

$2 = 2x+1$

$2x = 2-1$

$x = 1/2$

(iv) $(2/5)^{-3} \times (2/5)^{15} = (2/5)^{2+3x}$

Solution:

$(2/5)^{-3} \times (2/5)^{15} = (2/5)^{2+3x}$

$(2/5)^{-3+15} = (2/5)^{2+3x}$ (we know that $a^n \times a^m = a^{n+m}$)

$(2/5)^{12} = (2/5)^{2+3x}$

When the bases are same we can directly equate the coefficients

12 = 2+3x

3x = 12-2

x = 10/3

(v) $(5/4)^{-x} \div (5/4)^{-4} = (5/4)^5$

Solution:

$(5/4)^{-x} \div (5/4)^{-4} = (5/4)^5$

$(5/4)^{-x+4} = (5/4)^5$ (we know that $a^n \div a^m = a^{n-m}$)

When the bases are same we can directly equate the coefficients

-x+4 = 5

-x = 5-4

-x = 1

x = -1

(vi) $(8/3)^{2x+1} \times (8/3)^5 = (8/3)^{x+2}$

Solution:

$(8/3)^{2x+1} \times (8/3)^5 = (8/3)^{x+2}$

$(8/3)^{2x+1+5} = (8/3)^{x+2}$ (we know that $a^n \times a^m = a^{n+m}$)

$(8/3)^{2x+6} = (8/3)^{x+2}$

When the bases are same we can directly equate the coefficients

$2x+6 = x+2$

$2x-x = -6+2$

$x = -4$

13. (i) If $x= (3/2)^2 \times (2/3)^{-4}$, find the value of x^{-2}.

Solution:

$x= (3/2)^2 \times (2/3)^{-4}$

$= (3/2)^2 \times (3/2)^4$ (we know that $1/a^n = a^{-n}$)

$= (3/2)^{2+4}$ (we know that $a^n \times a^m = a^{n+m}$)

$= (3/2)^6$

$x^{-2} = ((3/2)^6)^{-2}$

$= (3/2)^{-12}$

$= (2/3)^{12}$

(ii) If $x = (4/5)^{-2} \div (1/4)^2$, find the value of x^{-1}.

Solution:

$x = (4/5)^{-2} \div (1/4)^2$

$= (5/4)^2 \div (1/4)^2$ (we know that $1/a^n = a^{-n}$)

$= (5/4)^2 \times (4/1)^2$ (we know that $1/a \div 1/b = 1/a \times b/1$)

$= 25/16 \times 16$

$= 25$

$x^{-1} = 1/25$

14. Find the value of x for which $5^{2x} \div 5^{-3} = 5^5$

Solution:

$5^{2x} \div 5^{-3} = 5^5$

$5^{2x+3} = 5^5$ (we know that $a^n \div a^m = a^{n-m}$)

When the bases are same we can directly equate the coefficients

2x+3 = 5

2x = 5-3

2x = 2

x = 1

EXERCISE 2.3 PAGE NO: 2.22

1. Express the following numbers in standard form:

(i) 6020000000000000

Solution:

To express 6020000000000000 in standard form, count the total digits leaving 1st digit from the left. So the total number of digits becomes the power of 10. Therefore the decimal comes after the 1st digit.

the total digits leaving 1st digit from the left is 15

∴ the standard form is 6.02×10^{15}

(ii) 0.00000000000942

Solution:

To express 0.00000000000942 in standard form,

Any number after the decimal point the powers become negative. Total digits after decimal is 12

∴ the standard form is 9.42×10^{-12}

(iii) 0.00000000085

Solution:

To express 0.00000000085 in standard form,

Any number after the decimal point the powers become negative. Total digits after decimal is 10

∴ the standard form is 8.5×10^{-10}

(iv) 846×10^7

Solution:

To express 846×10^7 in standard form, count the total digits leaving 1st digit from the left. So the total number of digits becomes the power of 10. Therefore the decimal comes after the 1st digit.

the total digits leaving 1st digit from the left is 2

$846 \times 10^7 = 8.46 \times 10^2 \times 10^7 = 8.46 \times 10^{2+7} = 8.46 \times 10^9$

(v) 3759×10^{-4}

Solution:

To express 3759×10^{-4} in standard form, count the total digits leaving 1st digit from the left. So the total number of digits becomes the power of 10. Therefore the decimal comes after the 1st digit.

the total digits leaving 1st digit from the left is 3

$3759 \times 10^{-4} = 3.759 \times 10^3 \times 10^{-4} = 3.759 \times 10^{3+(-4)} = 3.759 \times 10^{-1}$

(vi) 0.00072984

Solution:

To express 0.00072984 in standard form,

Any number after the decimal point the powers become negative. Total digits after decimal is 4

∴ the standard form is 7.2984×10^{-4}

(vii) 0.000437×10^4

Solution:

To express 0.000437×10^4 in standard form, Any number after the decimal point the powers become negative. Total digits after decimal is 4

∴ the standard form is $4.37 \times 10^{-4} \times 10^{4} = 4.37$

(viii) 4 ÷ 100000

Solution:

To express in standard form count the number of zeros of the divisor. This count becomes the negative power of 10.

∴ the standard form is 4×10^{-5}

2. Write the following numbers in the usual form:

(i) 4.83×10^{7}

Solution:

When the powers are positive the usual form of number is written after the multiplication of the given number, then place the decimal point after counting from right.

4.83 × 10000000 = 4830000000

48300000.00

∴ the usual form is 48300000

(ii) 3.02×10^{-6}

Solution:

When the powers are negative the decimal is placed to the left of the number.

3.02×10^{-6} here, the power is -6, so the decimal shifts 6 places to left.

∴ the usual form is 0.00000302

(iii) 4.5×10^{4}

Solution:

When the powers are positive the usual form of number is written after the multiplication of the given number, then place the decimal point after counting from right.

$4.5 \times 10000 = 450000$

45000.0

∴ the usual form is 45000

(iv) 3×10^{-8}

Solution:

When the powers are negative the decimal is placed to the left of the number.

3×10^{-6} here, the power is -8, so the decimal shifts 8 places to left.

∴ the usual form is 0.00000003

(v) 1.0001×10^{9}

Solution:

When the powers are positive the usual form of number is written after the multiplication of the given number, then place the decimal point after counting from right.

$1.0001 \times 1000000000 = 10001000000000$

1000100000.0000

∴ the usual form is 1000100000

(vi) 5.8×10^{2}

Solution:

When the powers are positive the usual form of number is written after the multiplication of the given number, then place the decimal point after counting from right.

$5.8 \times 100 = 5800$

580.0

∴ the usual form is 580

(vii) 3.61492×10^{6}

Solution:

When the powers are positive the usual form of number is written after the multiplication of the given number, then place the decimal point after counting from right.

3.61492 × 1000000 = 361492000000

3614920.00000

∴ the usual form is 3614920

(vii) 3.25 × 10^{-7}

Solution:

When the powers are negative the decimal is placed to the left of the number.

3.25 × 10^{-7} here, the power is -7, so the decimal shifts 7 places to left.

∴ the usual form is 0.000000325

Chapterwise RD Sharma Solutions for Class 8 Maths :

About RD Sharma

RD Sharma i*sn't the kind of author you'd bump into at lit fests. But his bestselling books have helped many* CBSE *students lose their dread of* maths. *Sunday Times profiles the tutor turned internet star*

He dreams of algorithms that would give most people nightmares. And, spends every waking hour thinking of ways to explain concepts like 'series solution of linear differential equations'. Meet Dr Ravi Dutt Sharma — mathematics teacher and author of 25 reference books — whose name evokes as much awe as the subject he teaches. And though students have used his thick tomes for the last 31 years to ace the dreaded maths exam, it's only recently that a spoof video turned the tutor into a YouTube star.

R D Sharma had a good laugh but said he shared little with his on-screen persona except for the love for maths. "I like to spend all my time thinking and writing about maths problems. I find it relaxing," he says. When he is not writing books explaining mathematical concepts for classes 6 to 12 and engineering students, Sharma is busy dispensing his duty as vice-principal and head of department of science and humanities at Delhi government's Guru Nanak Dev Institute of Technology.