

EduSahara™ Learning Center Assignment

Grade : Class IX, CBSE

Chapter : Number Systems

Name : Laws of Exponents for Real Numbers

1. $(-3 \times -2)^{-5/8} =$

(i) $(-3)^{\left(\frac{-5}{8}\right)} \times (-2)^{\left(\frac{-1}{2}\right)}$ (ii) $(-3)^{\left(\frac{-5}{8}\right)} \times (-2)^{\left(\frac{-3}{8}\right)}$

(iii) $(-3)^{\left(\frac{-5}{8}\right)} \times (-5)^{\left(\frac{-5}{8}\right)}$ (iv) $(-3)^{\left(\frac{-5}{8}\right)} \times (-2)^{\left(\frac{-5}{8}\right)}$

(v) $(-3)^{\left(\frac{-5}{8}\right)} \times (-2)^{\left(\frac{-5}{6}\right)}$

2. $(-2 \times 6 \times -2)^{3/2} =$

(i) $(-2)^{\left(\frac{3}{2}\right)} \times 6^{\left(\frac{3}{2}\right)} \times (-2)^{\left(\frac{3}{2}\right)}$ (ii) $(-2)^{\left(\frac{3}{2}\right)} \times 9^{\left(\frac{3}{2}\right)} \times (-2)^{\left(\frac{5}{2}\right)}$

(iii) $(-2)^{\left(\frac{3}{2}\right)} \times 4^{\left(\frac{3}{2}\right)} \times (-4)^{\left(\frac{3}{2}\right)}$ (iv) $(-2)^{\left(\frac{3}{2}\right)} \times 6^{\left(\frac{3}{4}\right)} \times (-2)^{\left(\frac{3}{4}\right)}$

(v) $(-2)^{\left(\frac{3}{2}\right)} \times 6^3 \times (-2)^3$

3. $\left(\left(\frac{-7}{5}\right) \times \frac{4}{3}\right)^9 =$

(i) $\left(\frac{-7}{5}\right)^9 \times \left(\frac{4}{3}\right)^8$ (ii) $\left(\frac{-7}{5}\right)^9 \times \left(\frac{4}{3}\right)^{10}$

(iii) $\left(\frac{-7}{5}\right)^9 \times \left(\frac{4}{3}\right)^9$ (iv) $\left(\frac{-7}{5}\right)^9 \times \left(\frac{2}{3}\right)^9$

(v) $\left(\frac{-7}{5}\right)^9 \times 2^9$

4. $(\sqrt[9]{4} \times (\sqrt[9]{6}) \times (\sqrt[9]{2}))^{9/2} =$

(i) $(\sqrt[9]{\frac{5}{4}})^{(9/2)} \times (\sqrt[9]{\frac{-3}{2}})^{(9/2)} \times (\sqrt[9]{\frac{-5}{2}})^{(9/2)}$ (ii) $(\sqrt[9]{\frac{5}{4}})^{(9/2)} \times (\sqrt[9]{\frac{-7}{6}})^{(9/4)} \times (\sqrt[9]{\frac{-3}{2}})^{(9/4)}$

(iii) $(\sqrt[9]{\frac{5}{4}})^{(9/2)} \times (\sqrt[9]{\frac{-7}{6}})^9 \times (\sqrt[9]{\frac{-3}{2}})^9$ (iv) $(\sqrt[9]{\frac{5}{4}})^{(9/2)} \times (\sqrt[9]{\frac{-7}{6}})^{(9/2)} \times (\sqrt[9]{\frac{-3}{2}})^{(9/2)}$

(v) $(\sqrt[9]{\frac{5}{4}})^{(9/2)} \times (\sqrt[9]{\frac{-5}{6}})^{(9/2)} \times (\sqrt[9]{\frac{-1}{2}})^{(9/2)}$

5. $(\frac{-4}{9})^7 =$

(i) $\frac{(-4)^7}{9^7}$ (ii) $\frac{(-4)^8}{9^7}$ (iii) $\frac{(-4)^6}{9^7}$ (iv) $\frac{(-4)^7}{7^7}$ (v) $\frac{(-4)^7}{12^7}$

6. $(\frac{-2}{3})^{-8} =$

(i) $\frac{(-2)^{-8}}{6^{-8}}$ (ii) $\frac{(-2)^{-9}}{3^{-8}}$ (iii) $\frac{(-2)^{-7}}{3^{-8}}$ (iv) $\frac{(-2)^{-8}}{3^{-10}}$ (v) $\frac{(-2)^{-8}}{3^{-8}}$

7. $\left[\frac{(\frac{3}{2})}{(-9)} \right]^5 =$

(i) $(\frac{15}{2})^{(-6)}$ (ii) $(\frac{29}{4})^{(-9)}$ (iii) $(-9)^8$

(iv) $(\frac{15}{2})^{(-9)}$ (v) $(\frac{15}{2})^{(-12)}$

8. $\left[\frac{(\frac{4}{3})}{(-2)} \right]^{4/3} =$

(i) $(-2)^2$ (ii) $\left(\frac{16}{9}\right)^{-5}$ (iii) $\left(\frac{18}{11}\right)^{-2}$

(iv) $\left(\frac{16}{9}\right)^{-2}$

9. $\left[\left(\frac{5}{2}\right)^{-3}\right]^2 =$

(i) $\left(\frac{5}{2}\right)^{-5}$ (ii) $\left(\frac{5}{2}\right)^{-7}$ (iii) $\left(\frac{5}{2}\right)^{-6}$

(iv) $\left(\frac{3}{2}\right)^{-6}$ (v) $\left(\frac{7}{2}\right)^{-6}$

10. $\left[\left(\frac{-4}{3}\right)^{-2/5}\right]^3 =$

(i) $\left(\frac{-4}{3}\right)^{-8/7}$ (ii) $\left(\frac{-4}{3}\right)^{-4/3}$ (iii) $\left(\frac{-4}{3}\right)^{-6/5}$

(iv) $\left(\frac{-2}{3}\right)^{-6/5}$ (v) $(-2)^{-6/5}$

11. $\left[\left(\frac{8}{3}\right)^{-5}\right]^{4/3} =$

(i) $\left(\frac{8}{3}\right)^{-8}$ (ii) $\left(\frac{8}{3}\right)^{-20/3}$ (iii) $2^{\left(\frac{-20}{3}\right)}$

(iv) $\left(\frac{8}{3}\right)^{-32/5}$ (v) $\left(\frac{10}{3}\right)^{-20/3}$

12. $\frac{14}{\sqrt{2}} \times \frac{14}{\sqrt{10}} =$

(i) $\frac{196}{\sqrt{20}}$ (ii) $\frac{196}{\sqrt{5}}$ (iii) $\frac{196}{\sqrt{10}}$ (iv) $\frac{196}{\sqrt{2}}$ (v) $\frac{196}{\sqrt{10}}$

$$12^{\angle u}$$

$$\sqrt{\quad}$$

$$14^{\angle v}$$

$$\sqrt{\quad}$$

$$14^{\angle u}$$

$$\sqrt{\quad}$$

$$16^{\angle u}$$

$$\sqrt{\quad}$$

$$14^{\angle v}$$

$$\sqrt{\quad}$$

$$9\sqrt{6}$$

13. $\frac{\quad}{\quad} =$

$$\frac{9\sqrt{8}}{\quad}$$

(i) $\frac{9\sqrt{3}}{4}$ (ii) $\frac{9\sqrt{5}}{4}$ (iii) $\frac{11\sqrt{3}}{4}$ (iv) $\frac{7\sqrt{3}}{4}$ (v) $\frac{9\sqrt{1}}{4}$

$$4\sqrt[3]{2}$$

14. $\frac{\quad}{\quad} =$

$$5\sqrt[3]{2}$$

(i) $\frac{2}{5}$ (ii) $\frac{4}{7}$ (iii) $\frac{6}{5}$ (iv) $\frac{4}{3}$ (v) $\frac{4}{5}$

$$6\sqrt{16}$$

15. $\frac{\quad}{\quad} =$

$$6\sqrt{12}$$

(i) $\frac{6\sqrt{4}}{3}$ (ii) $\frac{8\sqrt{4}}{3}$ (iii) $\frac{6\sqrt{2}}{3}$ (iv) $\frac{6\sqrt{2}}{3}$ (v) $\frac{4\sqrt{4}}{3}$

$$9\sqrt[3]{20}$$

16. $\frac{\quad}{\quad} =$

$$\frac{3\sqrt{6}}{\quad}$$

(i) $\frac{3\sqrt{2428}}{\quad}$ (ii) $\frac{3\sqrt{2430}}{\quad}$ (iii) $\frac{3\sqrt{2433}}{\quad}$ (iv) $\frac{2430}{\quad}$ (v) $\frac{5\sqrt{2430}}{\quad}$

17. $\frac{\quad}{\quad} =$

$$\frac{3\sqrt[5]{11}}{\quad}$$

(i) $2^{\left(\frac{11}{3}\right)}$ (ii) $5^{\left(\frac{3}{11}\right)}$ (iii) $8^{\left(\frac{11}{3}\right)}$ (iv) $5^{\left(\frac{11}{3}\right)}$ (v) 5^{11}

18. $\sqrt[16]{4} =$

(i) 1 (ii) 4^{16} (iii) $4^{\left(\frac{1}{16}\right)}$ (iv) $4^{\left(\frac{1}{14}\right)}$ (v) $6^{\left(\frac{1}{16}\right)}$

19. $15^{\left(\frac{1}{7}\right)} =$

(i) $\sqrt[7]{15}$ (ii) $\sqrt[5]{15}$ (iii) $\sqrt[1]{7^{15}}$ (iv) $\sqrt[7]{12}$ (v) $\sqrt[7]{18}$

20. $(-3)^8 =$

(i) $\left(\frac{-1}{3}\right)^{-7}$ (ii) $\left(\frac{1}{3}\right)^{-8}$ (iii) $(-1)^{-8}$ (iv) $\left(\frac{-1}{3}\right)^{-9}$ (v) $\left(\frac{-1}{3}\right)^{-8}$

21. $2^{-8} =$

(i) $\left(\frac{1}{2}\right)^8$ (ii) $\left(\frac{3}{2}\right)^8$ (iii) $\left(\frac{-1}{2}\right)^8$ (iv) $\left(\frac{1}{2}\right)^7$ (v) $\left(\frac{1}{2}\right)^9$

22. $(-4)^7 =$

(i) $\left(\frac{1}{4}\right)^{-7}$ (ii) $\left(\frac{-1}{4}\right)^{-8}$ (iii) $\left(\frac{-3}{4}\right)^{-7}$ (iv) $\left(\frac{-1}{4}\right)^{-6}$ (v) $\left(\frac{-1}{4}\right)^{-7}$

23. $\left(\frac{-9}{8}\right)^{\left(\frac{-5}{8}\right)} =$

(i) $\left(\frac{-8}{a}\right)^{(1/2)}$ (ii) $\left(\frac{-8}{a}\right)^{(5/8)}$ (iii) $\left(\frac{-2}{a}\right)^{(5/8)}$ (iv) $\left(\frac{-8}{a}\right)^{(5/6)}$ (v) $\left(\frac{-10}{a}\right)^{(5/8)}$

$$24. \frac{(-7)^4}{(-7)^9} =$$

- (i) $(-4)^{-5}$ (ii) $(-7)^{-6}$ (iii) $(-7)^{-4}$ (iv) $(-10)^{-5}$ (v) $(-7)^{-5}$
-

$$25. \frac{\left(\frac{7}{2}\right)^8}{\left(\frac{7}{2}\right)^7} =$$

- (i) $\frac{5}{2}$ (ii) $\frac{7}{2}$ (iii) $\left(\frac{7}{2}\right)^2$ (iv) 7 (v) $\frac{9}{2}$
-

$$26. \frac{\left(\frac{-2}{3}\right)^{(-4)}}{(-4)^5} =$$

- (i) $(-7)^{\left(\frac{-17}{3}\right)}$ (ii) $(-4)^{-7}$ (iii) $(-4)^{\left(\frac{-27}{5}\right)}$ (iv) $(-2)^{\left(\frac{-17}{3}\right)}$ (v) $(-4)^{\left(\frac{-17}{3}\right)}$
-

$$27. \frac{\left(\frac{-8}{7}\right)^{(5/4)}}{\left(\frac{-8}{7}\right)^{-4}} =$$

- (i) $\left(\frac{-6}{7}\right)^{(21/4)}$ (ii) $\left(\frac{-8}{7}\right)^{(11/2)}$ (iii) $\left(\frac{-8}{7}\right)^{(31/6)}$ (iv) $\left(\frac{-10}{7}\right)^{(21/4)}$ (v) $\left(\frac{-8}{7}\right)^{(21/4)}$
-

$$28. [(-2)^{-5}]^{-4} =$$

(i) $(-2)^{21}$ (ii) 1 (iii) $(-2)^{19}$

(iv) $(-4)^{20}$ (v) $(-2)^{20}$

29. $[3^{-3}]^{3/2} =$

(i) $3^{\left(\frac{-9}{2}\right)}$ (ii) $5^{\left(\frac{-9}{2}\right)}$ (iii) $3^{\left(\frac{-11}{2}\right)}$

(iv) $3^{\left(\frac{-17}{4}\right)}$ (v) 3^{-5}

30. $\left[\left(\frac{-8}{7}\right)^{-4}\right]^{5/3} =$

(i) $\left(\frac{-8}{7}\right)^{(-32/5)}$ (ii) $\left(\frac{-8}{7}\right)^{-8}$ (iii) $\left(\frac{-6}{7}\right)^{(-20/3)}$

(iv) $\left(\frac{-8}{7}\right)^{(-20/3)}$ (v) $\left(\frac{-10}{7}\right)^{(-20/3)}$

31. Simplify the expression $\left(\frac{-3}{7}\right)^{-9} \times \left(\frac{-3}{7}\right)^{-2} \times \left(\frac{-3}{7}\right)^{-2}$

(i) $\left(\frac{-3}{7}\right)^{-12}$ (ii) $\left(\frac{-1}{7}\right)^{-13}$ (iii) $\left(\frac{-3}{7}\right)^{-13}$

(iv) $\left(\frac{-5}{7}\right)^{-13}$ (v) $\left(\frac{-3}{7}\right)^{-14}$

32. Simplify the expression $\left(\frac{9}{5}\right)^{(5/2)} \times \left(\frac{9}{5}\right)^{(9/8)} \times \left(\frac{9}{5}\right)^{(7/3)}$

(i) $\left(\frac{9}{5}\right)^{(143/24)}$ (ii) $\left(\frac{7}{5}\right)^{(143/24)}$ (iii) $\left(\frac{9}{5}\right)^{(133/22)}$

(iv) $\left(\frac{9}{5}\right)^{(153/26)}$ (v) $\left(\frac{7}{11}\right)^{(143/24)}$

\sqrt{5}

\sqrt{5}

33. Simplify the expression $\left(\frac{-7}{9}\right)^{-3} \times \left(\frac{-7}{9}\right)^{-2}$

(i) $6^{\left(\frac{-7}{11}\right)}$ (ii) $6^{\left(\frac{-7}{9}\right)}$ (iii) $9^{\left(\frac{-7}{9}\right)}$

(iv) 6^{-1} (v) $3^{\left(\frac{-7}{9}\right)}$

34. Simplify the expression $\left(\frac{8}{7}\right)^6 \times 5^6 \times \left(\frac{8}{5}\right)^6$

(i) $\left(\frac{66}{7}\right)^6$ (ii) $\left(\frac{64}{7}\right)^6$ (iii) $\left(\frac{62}{7}\right)^6$

(iv) $\left(\frac{64}{7}\right)^7$ (v) $\left(\frac{64}{7}\right)^5$

35. Simplify $\frac{4^{-2}}{2^{-2}}$

(i) $(-1)^{-2}$ (ii) 2^{-1} (iii) 2^{-2}

(iv) 4^{-2} (v) 2^{-3}

36. Simplify $\frac{4^{-2} \times (-5)^{-2}}{4^{-2} \times 2^{-2}}$

(i) $\left(\frac{2}{5}\right)^{-1}$ (ii) $\left(\frac{2}{5}\right)^3$ (iii) $\left(\frac{4}{5}\right)^2$

(iv) $\left(\frac{2}{5}\right)^2$ (v) $\frac{2}{5}$

37. Simplify $\frac{3^{-2} \times 2^{-2} \times 2^2}{2^{-2} \times 3^2 \times 3^{-2}}$

(i) $\left(\frac{4}{3}\right)^2$ (ii) $\left(\frac{2}{3}\right)^3$ (iii) $\left(\frac{2}{3}\right)^2$

(iv) $\frac{2}{3}$ (v) $\left(\frac{2}{3}\right)^{-1}$

38. Simplify $\frac{(-5)^2 \times (-5)^2}{4^{-2} \times (-3)^{-2}}$

(i) 302^2 (ii) 300 (iii) 298^2

(iv) 300^3 (v) 300^2

39. The value of $\left(\frac{-4}{3}\right)^{-2} \times \left(\frac{-5}{3}\right)^{-3}$

(i) $\left(\frac{-49}{400}\right)$ (ii) $\left(\frac{-243}{2000}\right)^2$ (iii) $\left(\frac{-241}{2000}\right)$ (iv) $\left(\frac{-9}{74}\right)$ (v) $\left(\frac{-243}{2000}\right)$

40. The value of $3^3 \div (-5)^3$

(i) $\left(\frac{-27}{125}\right)$ (ii) $\left(\frac{-29}{125}\right)$ (iii) $\left(\frac{-1}{5}\right)$ (iv) $\left(\frac{-9}{41}\right)$ (v) $\left(\frac{-27}{125}\right)^2$

41. The value of $5^{-2} \div (-5)^{-3}$

(i) -7 (ii) -5 (iii) $(-5)^2$ (iv) -6 (v) -2

42. The value of $\left(\frac{-1}{3}\right)^3 \div \left(\frac{1}{3}\right)^3$

(i) $(\frac{-10}{27})$ (ii) $(\frac{-8}{27})^2$ (iii) $(\frac{-8}{25})$ (iv) $(\frac{-2}{9})$ (v) $(\frac{-8}{27})$

43. The value of $(\frac{-3}{2})^{-3} \div (\frac{5}{2})^{-2}$

(i) -2 (ii) $(\frac{-50}{27})^2$ (iii) $(\frac{-50}{27})$ (iv) $(\frac{-52}{27})$ (v) $(\frac{-16}{9})$

44. Find the value of $(-4)^5$

(i) -1025 (ii) -1026 (iii) -1024 (iv) -1023 (v) -1021

45. Find the value of $(\frac{9}{4})^{(5/2)}$

(i) $\frac{243}{34}$ (ii) $\frac{241}{32}$ (iii) $\frac{81}{10}$ (iv) $\frac{243}{32}$ (v) $\frac{245}{32}$

46. Find the value of $9^{(\frac{-5}{2})}$

(i) $(\frac{-1}{243})$ (ii) $\frac{1}{243}$ (iii) $\frac{1}{81}$ (iv) $\frac{1}{241}$ (v) $\frac{1}{245}$

47. Find the value of $(-2)^{-3}$

(i) $(\frac{-3}{8})$ (ii) $\frac{1}{8}$ (iii) $(\frac{-1}{6})$ (iv) $(\frac{-1}{10})$ (v) $(\frac{-1}{8})$

Assignment Key

- 1) (iv)
- 2) (i)
- 3) (iii)
- 4) (iv)
- 5) (i)
- 6) (v)
- 7) (iv)
- 8) (iv)
- 9) (iii)
- 10) (iii)
- 11) (ii)
- 12) (iii)
- 13) (i)
- 14) (v)
- 15) (i)
- 16) (ii)
- 17) (iv)
- 18) (iii)
- 19) (i)
- 20) (v)
- 21) (i)
- 22) (v)
- 23) (ii)
- 24) (v)
- 25) (ii)
- 26) (v)
- 27) (v)
- 28) (v)
- 29) (i)
- 30) (iv)
- 31) (iii)
- 32) (i)
- 33) (ii)
- 34) (ii)
- 35) (iii)
- 36) (iv)
- 37) (iii)
- 38) (v)
- 39) (v)
- 40) (i)
- 41) (ii)
- 42) (v)
- 43) (iii)
- 44) (iii)
- 45) (iv)
- 46) (ii)
- 47) (v)