EduSahara™ Assignment

Name : Laws of Exponents for Real Numbers

Chapter : Number Systems

Grade : CBSE Grade IX

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1. $(-4 \times -9)^{-3/7} =$

(i) $\left(\frac{-3}{7}\right)_{(-4)} \times \left(\frac{-3}{5}\right)_{(-9)}$ (ii) $\left(\frac{-3}{7}\right)_{(-4)} \times \left(\frac{-1}{3}\right)_{(-9)}$ (iii) $\left(\frac{-3}{7}\right)_{(-4)} \times \left(\frac{-3}{7}\right)_{(-7)}$ (iv) $\left(\frac{-3}{7}\right)_{(-4)} \times \left(\frac{-3}{7}\right)_{(-12)}$

(v) $\left(\frac{-3}{7}\right)_{(-4)} \times \left(\frac{-3}{7}\right)_{(-9)}$

2. $(-4 \times 5 \times 2)^{7/4} =$

(i) $\left(\frac{7}{4}\right)_{(-4)} \times \left(\frac{7}{6}\right)_{5} \times \left(\frac{7}{6}\right)_{2}$ (ii) $\left(\frac{7}{4}\right)_{(-4)} \times \left(\frac{7}{4}\right)_{2} \times \left(\frac{5}{4}\right)_{2}$ (iii) $\left(\frac{7}{4}\right)_{(-4)} \times \left(\frac{7}{4}\right)_{5} \times \left(\frac{7}{4}\right)_{2}$ (iv) $\left(\frac{7}{4}\right)_{(-4)} \times \left(\frac{7}{4}\right)_{7} \times \left(\frac{7}{4}\right)_{4}$

(v) $\left(\frac{7}{4}\right)_{(-4)} \times \left(\frac{7}{2}\right)_{5} \times \left(\frac{7}{2}\right)_{2}$

3. $\left(\frac{7}{2} \times \left(\frac{-7}{8}\right)\right)^{6} =$

(i) $\left(\frac{7}{2}\right)^{6} \times \left(\frac{-7}{8}\right)^{5}$ (ii) $\left(\frac{7}{2}\right)^{6} \times \left(\frac{-5}{8}\right)^{6}$ (iii) $\left(\frac{7}{2}\right)^{6} \times \left(\frac{-9}{8}\right)^{6}$ (iv) $\left(\frac{7}{2}\right)^{6} \times \left(\frac{-7}{8}\right)^{7}$ (v) $\left(\frac{7}{2}\right)^{6} \times \left(\frac{-7}{8}\right)^{6}$

4. $\left(\frac{9}{2} \times \frac{2}{1} \times \left(\frac{-2}{3}\right)\right)^{-6/7} =$

(i) $\left(\frac{9}{2}\right)^{(-6/7)} \times_{2} \left(\frac{-6}{5}\right)^{(-6/5)} \times \left(\frac{-2}{3}\right)$ (ii) $\left(\frac{9}{2}\right)^{(-6/7)} \times_{2} \left(\frac{-6}{7}\right)^{(-6/7)} \times \left(\frac{-2}{3}\right)$ (iii) $\left(\frac{9}{2}\right)^{(-6/7)} \times_{2} \left(\frac{-8}{7}\right)^{(-6/7)} \times \left(\frac{-4}{3}\right)$

(iv) $\left(\frac{9}{2}\right)^{(-6/7)} \times_{5} \left(\frac{-6}{7}\right)^{(-4/7)} \times \left(\frac{-2}{3}\right)$ (v) $\left(\frac{9}{2}\right)^{(-6/7)} \times_{2} \left(\frac{-2}{3}\right)^{(-2/3)} \times \left(\frac{-2}{3}\right)$

5. $\left(\frac{6}{5}\right)^{7}$ =

(i) $\frac{6^7}{5^7}$ (ii) $\frac{6^6}{5^7}$ (iii) $\frac{6^7}{8^7}$ (iv) $\frac{6^8}{5^7}$ (v) $\frac{6^7}{3^7}$

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

(i) $\frac{(-5)^{-4}}{12^{-4}}$ (ii) $\frac{(-5)^{-3}}{9^{-4}}$ (iii) $\frac{(-5)^{-4}}{7^{-4}}$ (iv) $\frac{(-5)^{-5}}{9^{-4}}$ (v) $\frac{(-5)^{-4}}{9^{-4}}$

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

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

8. $\left[6^{\left(\frac{-3}{2}\right)}\right]^{5}$ =

(i) $6^{\left(\frac{-29}{4}\right)}$ (ii) $6^{\left(\frac{-15}{2}\right)}$ (iii) 6^{-8} (iv) $8^{\left(\frac{-15}{2}\right)}$ (v) $3^{\left(\frac{-15}{2}\right)}$

9. $[7^3]^{-5}$ =

(i) 7^{-15} (ii) 9^{-15} (iii) 4^{-15} (iv) 7^{-16} (v) 7^{-14}

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

(i) $\left(\frac{-5}{2}\right)^{-6}$ (ii) $\left(\frac{-7}{2}\right)^{-6}$ (iii) $\left(\frac{-3}{2}\right)^{-6}$ (iv) $\left(\frac{-5}{2}\right)^{-7}$ (v) $\left(\frac{-5}{2}\right)^{-5}$

11. $\left[\left(\frac{-5}{9}\right)^{2}\right]^{-5/4}$ =

(i) $\left(\frac{-5}{9}\right)^{-3}$ (ii) $\left(\frac{-5}{9}\right)^{(-5/2)}$ (iii) $\left(\frac{-5}{9}\right)^{(-9/4)}$ (iv) $\left(\frac{-7}{9}\right)^{(-5/2)}$ (v) $\left(\frac{-1}{3}\right)^{(-5/2)}$

12. $\sqrt[12]{6} \times \sqrt[12]{10}$ =

(i) $\sqrt[10]{60}$ (ii) $\sqrt[12]{58}$ (iii) $\sqrt[12]{60}$ (iv) $\sqrt[14]{60}$ (v) $\sqrt[12]{63}$

13. $\frac{\sqrt[3]{8}}{\sqrt[3]{5}}$ =

(i) $\sqrt[3]{\frac{6}{5}}$ (ii) $\sqrt[5]{\frac{8}{5}}$ (iii) $\sqrt[3]{2}$ (iv) $\sqrt[3]{\frac{8}{5}}$ (v) $\frac{8}{5}$

14. $\frac{9\sqrt[3]{6}}{9\sqrt[3]{10}}$ =

(i) $\frac{3}{5}$ (ii) $\sqrt[3]{\frac{3}{5}}$ (iii) $\sqrt[3]{\frac{1}{5}}$ (iv) 1 (v) $\sqrt[5]{\frac{3}{5}}$

15. $\frac{\sqrt[6]{9}}{\sqrt[6]{13}}$ =

(i) $\sqrt[6]{\frac{11}{13}}$ (ii) $\sqrt[4]{\frac{9}{13}}$ (iii) $\sqrt[8]{\frac{9}{13}}$ (iv) $\sqrt[6]{\frac{7}{13}}$ (v) $\sqrt[6]{\frac{9}{13}}$

16. $\frac{5\sqrt[3]{8}}{3\sqrt[3]{2}}$ =

(i) $\sqrt[5]{\frac{500}{27}}$ (ii) $\sqrt[3]{\frac{166}{9}}$ (iii) $\sqrt[3]{\frac{500}{27}}$ (iv) $\sqrt[3]{\frac{502}{27}}$ (v) $\frac{500}{27}$

17. $\sqrt[3]{9^{11}}$ =

(i) $9^{\left(\frac{3}{11}\right)}$ (ii) 9^{11} (iii) $11^{\left(\frac{11}{3}\right)}$ (iv) $6^{\left(\frac{11}{3}\right)}$ (v) $9^{\left(\frac{11}{3}\right)}$

18. $\sqrt{7}$ =

(i) $5^{\left(\frac{1}{2}\right)}$ (ii) $7^{\left(\frac{1}{2}\right)}$ (iii) 7^2 (iv) $10^{\left(\frac{1}{2}\right)}$ (v) 1

19. $26^{\left(\frac{1}{5}\right)}$ =

(i) $\sqrt[5]{28}$ (ii) $\sqrt[3]{26}$ (iii) $\sqrt[5]{23}$ (iv) $\sqrt[5]{26}$ (v) $\sqrt[1]{5^{26}}$

20. 3^8 =

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

21. $(-3)^{-2}$ =

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

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

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

23. $\left(\frac{-2}{9}\right)^{(-4/9)}$ =

(i) $\left(\frac{-9}{2}\right)^{(4/11)}$ (ii) $\left(\frac{-11}{2}\right)^{(4/9)}$ (iii) $\left(\frac{-9}{2}\right)^{(4/9)}$ (iv) $\left(\frac{-7}{2}\right)^{(4/9)}$ (v) $\left(\frac{-9}{2}\right)^{(4/7)}$

24. $\frac{(-5)^5}{(-5)^{-8}}$ =

(i) $(-5)^{14}$ (ii) $(-2)^{13}$ (iii) $(-5)^{12}$ (iv) $(-5)^{13}$ (v) $(-7)^{13}$

25. $\frac{5^{3}}{5^{-5}}$ =

(i) 2^{8} (ii) 5^{8} (iii) 5^{9} (iv) 7^{8} (v) 5^{7}

26. $\frac{(-9)^{-4}}{\left(\frac{4}{3}\right)_{(-9)}}$ =

(i) $\left(\frac{-16}{3}\right)_{(-12)}$ (ii) $\left(\frac{-26}{5}\right)_{(-9)}$ (iii) $\left(\frac{-16}{3}\right)_{(-9)}$ (iv) $\left(\frac{-16}{3}\right)_{(-7)}$ (v) $(-9)^{-6}$

27. $\frac{\left(\frac{-4}{3}\right)_{(-7)}}{\left(\frac{5}{2}\right)_{(-7)}}$ =

(i) $\left(\frac{-23}{6}\right)_{(-10)}$ (ii) $\left(\frac{-17}{4}\right)_{(-7)}$ (iii) $\left(\frac{-23}{6}\right)_{(-7)}$ (iv) $\left(\frac{-23}{6}\right)_{(-5)}$ (v) $\left(\frac{-29}{8}\right)_{(-7)}$

28. $[7^{2}]^{-4}$ =

(i) 7^{-8} (ii) 7^{-9} (iii) 4^{-8} (iv) 10^{-8} (v) 7^{-7}

29. $[3^{-2}]^{5/4}$ =

(i) $\left(\frac{-5}{2}\right)_{5}$ (ii) $\left(\frac{-5}{2}\right)_{3}$ (iii) 3^{-3} (iv) $\left(\frac{-7}{2}\right)_{3}$ (v) $\left(\frac{-9}{4}\right)_{3}$

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

(i) $\left(\frac{-7}{8}\right)^{-21}$ (ii) $\left(\frac{-9}{8}\right)^{-20}$ (iii) $\left(\frac{-5}{8}\right)^{-20}$ (iv) $\left(\frac{-7}{8}\right)^{-20}$ (v) $\left(\frac{-7}{8}\right)^{-19}$

31. Simplify the expression $\left(\frac{-2}{5}\right)^{-2} \times \left(\frac{-2}{5}\right)^{-6} \times \left(\frac{-2}{5}\right)^{-7}$

(i) $\left(\frac{-4}{5}\right)^{-15}$ (ii) $\left(\frac{-2}{5}\right)^{-16}$ (iii) $\left(\frac{-2}{5}\right)^{-12}$ (iv) $\left(\frac{-2}{5}\right)^{-14}$ (v) $\left(\frac{-2}{5}\right)^{-15}$

32. Simplify the expression $\left(\frac{5}{2}\right)^{(5/3)} \times \left(\frac{5}{2}\right)^{(8/3)} \times \left(\frac{5}{2}\right)^{(5/4)}$

(i) $\left(\frac{5}{2}\right)^{(57/10)}$ (ii) $\left(\frac{5}{2}\right)^{(11/2)}$ (iii) $\left(\frac{3}{2}\right)^{(67/12)}$ (iv) $\left(\frac{5}{2}\right)^{(67/12)}$ (v) $\left(\frac{7}{2}\right)^{(67/12)}$

33. Simplify the expression $\left(\frac{-7}{6}\right)^{(-6)} \times \left(\frac{-7}{6}\right)^{(-4)}$

(i) $\left(\frac{-7}{6}\right)^{24}$ (ii) $\left(\frac{-7}{6}\right)^{27}$ (iii) $\left(\frac{-7}{4}\right)^{24}$ (iv) $\left(\frac{-7}{8}\right)^{24}$ (v) $\left(\frac{-7}{6}\right)^{22}$

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

(i) $\left(\frac{108}{7}\right)^{(5/4)}$ (ii) $\left(\frac{108}{7}\right)^{(5/2)}$ (iii) $\left(\frac{110}{7}\right)^{(5/2)}$ (iv) $\left(\frac{106}{7}\right)^{(5/2)}$ (v) $\left(\frac{108}{7}\right)^{5}$

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

(i) 2^5 (ii) 2^3 (iii) 2^7 (iv) 2^6 (v) 4^6

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

(i) 12^2 (ii) 12 (iii) 12^3 (iv) 9^2 (v) 15^2

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

(i) $\frac{5}{3}$ (ii) 1 (iii) $\left(\frac{5}{3}\right)^{3}$ (iv) $\left(\frac{5}{3}\right)^{2}$ (v) $\left(\frac{7}{3}\right)^{2}$

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

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

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

(i) $\left(\frac{-731}{512}\right)$ (ii) $\left(\frac{-729}{512}\right)$ (iii) $\left(\frac{-729}{512}\right)^{2}$ (iv) $\left(\frac{-727}{512}\right)$ (v) $\left(\frac{-243}{170}\right)$

40. The value of $(-4)^{2}\div 2^{2}$

(i) 4 (ii) 7 (iii) 3 (iv) 4^{2} (v) 2

41. The value of $(-4)^{-2}\div 4^{-3}$

(i) 3 (ii) 4 (iii) 2 (iv) 4^{2} (v) 6

42. The value of $\left(\frac{-1}{3}\right)^{2}\div\left(\frac{-1}{2}\right)^{2}$

(i) $\frac{2}{3}$ (ii) $\frac{4}{9}$ (iii) $\frac{2}{9}$ (iv) $\frac{4}{7}$ (v) $\left(\frac{4}{9}\right)^{2}$

43. The value of $\left(\frac{2}{3}\right)^{-2}\div\left(\frac{-1}{2}\right)^{-2}$

(i) $\left(\frac{9}{16}\right)^{2}$ (ii) $\frac{9}{14}$ (iii) $\frac{7}{16}$ (iv) $\frac{9}{16}$ (v) $\frac{11}{16}$

44. Find the value of $\left(\frac{3}{2}\right)_{25}$

(i) 126 (ii) 123 (iii) 124 (iv) 125 (v) 128

45. Find the value of $(-4)^4$

(i) 256 (ii) 259 (iii) 255 (iv) 257 (v) 253

46. Find the value of $\left(\frac{-3}{5}\right)_{(-32)}$

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

47. Find the value of $\left(\frac{-3}{4}\right)^{-3}$

(i) $(\frac{-64}{25})$ (ii) $(\frac{-64}{29})$ (iii) $(\frac{-64}{27})$ (iv) $(\frac{-62}{27})$ (v) $(\frac{-22}{9})$

Assignment Key

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