

EduSahara™ Learning Center Assignment**Grade : Class IX, SSC****Chapter : Real Numbers****Name : Law of Exponents for Real Numbers**

$$1. \frac{(-3)^{-3}}{(-3)^2} =$$

- (i) $(-3)^{-5}$ (ii) $(-1)^{-5}$ (iii) $(-5)^{-5}$ (iv) $(-3)^{-6}$ (v) $(-3)^{-4}$

$$2. \frac{\left(\frac{4}{3}\right)^{-9}}{\left(\frac{4}{3}\right)^8} =$$

- (i) $\left(\frac{2}{3}\right)^{-17}$ (ii) $\left(\frac{4}{3}\right)^{-17}$ (iii) 2^{-17} (iv) $\left(\frac{4}{3}\right)^{-16}$ (v) $\left(\frac{4}{3}\right)^{-18}$

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

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

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

- (i) $\left(\frac{-17}{6}\right)^{-2}$ (ii) $(-17/6)$ (iii) $\left(\frac{-8}{5}\right)^{-17/6}$ (iv) $\left(\frac{-8}{5}\right)^{-21/8}$ (v) $(-13/4)$

5. $[6^{-5}]^4 =$

(i) 9^{-20} (ii) 6^{-21} (iii) 3^{-20}

(iv) 6^{-20} (v) 6^{-19}

6. $[(-7)^{-5}]^{-2/5} =$

(i) $(-4)^2$ (ii) $(-7)^2$ (iii) $(-9)^2$

(iv) -7 (v) $(-7)^3$

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

(i) $(-3)^{\left(\frac{-15}{2} \right)}$ (ii) $(-3)^{\left(\frac{-29}{4} \right)}$ (iii) $(-1)^{\left(\frac{-15}{2} \right)}$

(iv) $(-3)^{-8}$ (v) $(-5)^{\left(\frac{-15}{2} \right)}$

8. $[(-3)^3]^{-3/4} =$

(i) $(-3)^{\left(\frac{-9}{4} \right)}$ (ii) $(-6)^{\left(\frac{-9}{4} \right)}$ (iii) $(-1)^{\left(\frac{-9}{4} \right)}$

(iv) $(-3)^{\left(\frac{-5}{2} \right)}$ (v) $(-3)^{\left(\frac{-13}{6} \right)}$

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

(i) $\left(\frac{-9}{2} \right)^{10}$ (ii) $\left(\frac{-11}{2} \right)^{10}$ (iii) $\left(\frac{-9}{2} \right)^{11}$

(iv) $\left(\frac{-9}{2} \right)^9$ (v) $\left(\frac{-7}{2} \right)^{10}$

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

- (i) $\left(\frac{-7}{3} \right)^{(8/3)}$ (ii) $\left(\frac{-7}{3} \right)^{(12/5)}$ (iii) $\left(\frac{-7}{3} \right)^{(16/7)}$
 (iv) $\left(\frac{12}{5} \right)^{(-3)}$ (v) $\left(\frac{-5}{3} \right)^{(12/5)}$

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

- (i) $\left(\frac{-2}{5} \right)^{(-25/4)}$ (ii) $\left(\frac{-4}{5} \right)^{(-37/6)}$ (iii) $\left(\frac{-4}{5} \right)^{(-25/4)}$
 (iv) $\left(\frac{-6}{5} \right)^{(-25/4)}$ (v) $\left(\frac{-4}{5} \right)^{(-13/2)}$

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

- (i) $\left(\frac{-9}{2} \right)^{(41/5)}$ (ii) $\left(\frac{-11}{2} \right)^{(25/3)}$ (iii) $\left(\frac{-9}{2} \right)^9$
 (iv) $\left(\frac{-7}{2} \right)^{(25/3)}$ (v) $\left(\frac{-9}{2} \right)^{(25/3)}$

13. Simplify the expression $3^5 \times 3^6 \times 3^5$

- (i) 3^{16} (ii) 3^{15} (iii) 3^{17}
 (iv) 6^{16} (v) 3^{14}

14. Simplify the expression $6^{-2} \times 6^{-4}$

(i) 9^{-6} (ii) 4^{-6} (iii) 6^{-7}

(iv) 6^{-5} (v) 6^{-6}

15. Simplify the expression $(-5)^7 \times (-5)^7 \times (-5)^3$

(i) $(-7)^{17}$ (ii) $(-5)^{16}$ (iii) $(-5)^{17}$

(iv) $(-5)^{18}$ (v) $(-2)^{17}$

16. Simplify the expression $(-2)^{-7} \times (-2)^{-2}$

(i) $(-5)^{-9}$ (ii) $(-2)^{-8}$ (iii) $(-2)^{-10}$

(iv) $(-2)^{-6}$ (v) $(-2)^{-9}$

17. Simplify the expression $7^{\left(\frac{9}{8}\right)} \times 7^{\left(\frac{7}{4}\right)}$

(i) $7^{\left(\frac{19}{6}\right)}$ (ii) $7^{\left(\frac{27}{10}\right)}$ (iii) $7^{\left(\frac{23}{8}\right)}$

(iv) $10^{\left(\frac{23}{8}\right)}$ (v) $5^{\left(\frac{23}{8}\right)}$

18. Simplify the expression $8^{\left(\frac{-3}{8}\right)} \times 8^{\left(\frac{-3}{7}\right)} \times 8^{\left(\frac{-3}{2}\right)}$

(i) $10^{\left(\frac{-129}{56}\right)}$ (ii) $8^{\left(\frac{-125}{54}\right)}$ (iii) $5^{\left(\frac{-129}{56}\right)}$

(iv) $8^{\left(\frac{-133}{58}\right)}$ (v) $8^{\left(\frac{-129}{56}\right)}$

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

(-35) (-39) (-35)

(i) $\left(\frac{12}{12}\right)^{-6}$ (ii) $\left(\frac{14}{14}\right)^{-4}$ (iii) $\left(\frac{12}{12}\right)^{-4}$

(iv) $\left(\frac{35}{12}\right)^{-1}$ (v) $\left(\frac{31}{10}\right)^{-4}$

20. Simplify the expression $\left(\frac{-7}{9}\right)^{-2} \times \left(\frac{-5}{6}\right)^{-2} \times \left(\frac{-5}{2}\right)^{-2}$

(i) $\left(\frac{-37}{9}\right)^{-2}$ (ii) $\left(\frac{-29}{7}\right)^{-2}$ (iii) $\left(\frac{-37}{9}\right)^{-5}$

(iv) $\left(\frac{-45}{11}\right)^{-2}$ (v) 1

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

(i) $\left(\frac{7}{5}\right)^3$ (ii) $\left(\frac{7}{5}\right)^4$ (iii) $\left(\frac{9}{5}\right)^4$

(iv) 1 (v) $\left(\frac{7}{5}\right)^5$

22. Simplify the expression $4^{-4} \times 4^{-4} \times 4^{-5}$

(i) 6^{-13} (ii) 1 (iii) 4^{-14}

(iv) 4^{-12} (v) 4^{-13}

23. Simplify the expression $\left(\frac{-8}{3}\right)^2 \times \left(\frac{-8}{3}\right)^2 \times \left(\frac{-8}{3}\right)^5$

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

(iv) $\left(\frac{-8}{3}\right)^{10}$ (v) $\left(\frac{-10}{3}\right)^9$

24. Simplify the expression $(-4)^{-5} \times (-4)^{-3} \times (-4)^{-5}$

(i) $(-4)^{-12}$ (ii) $(-4)^{-14}$ (iii) $(-2)^{-13}$

(iv) $(-7)^{-13}$ (v) $(-4)^{-13}$

25. Simplify the expression $\left(\frac{8}{7}\right)^{(8/3)} \times \left(\frac{8}{7}\right)^{(5/4)}$

(i) $\left(\frac{6}{7}\right)^{(47/12)}$ (ii) $\left(\frac{8}{7}\right)^{(53/14)}$ (iii) $\left(\frac{8}{7}\right)^{(41/10)}$

(iv) $\left(\frac{8}{7}\right)^{(47/12)}$ (v) $\left(\frac{10}{7}\right)^{(47/12)}$

26. Simplify the expression $\left(\frac{5}{4}\right)^{(-6/5)} \times \left(\frac{5}{4}\right)^{(-2/3)}$

(i) $\left(\frac{7}{4}\right)^{(-28/15)}$ (ii) $\left(\frac{5}{4}\right)^{(-30/17)}$ (iii) $\left(\frac{3}{4}\right)^{(-28/15)}$

(iv) $\left(\frac{5}{4}\right)^{(-28/15)}$ (v) $\left(\frac{5}{4}\right)^{-2}$

27. Simplify the expression $\left(\frac{-9}{4}\right)^{(8/7)} \times \left(\frac{-9}{4}\right)^5$

(i) $\left(\frac{-7}{4}\right)^{(43/7)}$ (ii) $\left(\frac{-11}{4}\right)^{(43/7)}$ (iii) $\left(\frac{-9}{4}\right)^{(55/9)}$

(iv) $\left(\frac{-9}{4}\right)^{(43/7)}$ (v) $\left(\frac{-9}{4}\right)^{(31/5)}$

28. Simplify the expression $\left(\frac{-4}{\alpha}\right)^{(-2/9)} \times \left(\frac{-4}{\alpha}\right)^{-6}$

$$(i) \left(\frac{-56}{9}\right)^{\left(\frac{-2}{3}\right)} \quad (ii) \left(\frac{-56}{9}\right)^{\left(\frac{-2}{9}\right)} \quad (iii) \left(\frac{-44}{7}\right)^{\left(\frac{-4}{9}\right)}$$

$$(iv) \left(\frac{-4}{9}\right)^{\left(\frac{-56}{9}\right)} \quad (v) \left(\frac{-4}{9}\right)^{\left(\frac{-68}{11}\right)}$$

29. Simplify the expression $7^3 \times 2^3$

$$(i) 14^4 \quad (ii) 12^3 \quad (iii) 16^3$$

$$(iv) 14^2 \quad (v) 14^3$$

30. Simplify the expression $3^{-5} \times 7^{-5}$

$$(i) 21^{-4} \quad (ii) 19^{-5} \quad (iii) 23^{-5}$$

$$(iv) 21^{-5} \quad (v) 21^{-6}$$

31. Simplify the expression $(-3)^8 \times (-2)^8$

$$(i) 6^9 \quad (ii) 6^8 \quad (iii) 6^7$$

$$(iv) 9^8 \quad (v) 4^8$$

32. Simplify the expression $(-3)^{-2} \times (-4)^{-2} \times (-7)^{-2}$

$$(i) (-86)^{-2} \quad (ii) (-81)^{-2} \quad (iii) (-84)^{-2}$$

$$(iv) (-84)^{-3} \quad (v) (-84)^{-1}$$

33. Simplify the expression $5^{\left(\frac{3}{2}\right)} \times 5^{\left(\frac{3}{2}\right)} \times 3^{\left(\frac{3}{2}\right)}$

$$(i) 75^3 \quad (ii) 72^{\left(\frac{3}{2}\right)} \quad (iii) 75^{\left(\frac{3}{2}\right)}$$

$$(iv) \left(\frac{3}{2}\right) \quad (v) \left(\frac{3}{2}\right)$$

$$75 \sqrt[4]{\quad} \quad 77 \sqrt[2]{\quad}$$

34. Simplify the expression $\left(\frac{3}{2}\right)^3 \times \left(\frac{7}{4}\right)^3 \times \left(\frac{4}{3}\right)^3$

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

(iv) $\left(\frac{9}{2}\right)^3$ (v) $\left(\frac{5}{2}\right)^3$

35. Simplify the expression $\left(\frac{9}{5}\right)^{-8} \times 7^{-8} \times \left(\frac{4}{3}\right)^{-8}$

(i) $\left(\frac{82}{5}\right)^{-8}$ (ii) $\left(\frac{84}{5}\right)^{-7}$ (iii) $\left(\frac{84}{5}\right)^{-8}$

(iv) $\left(\frac{84}{5}\right)^{-9}$ (v) $\left(\frac{86}{5}\right)^{-8}$

36. Expand the following base power 4^4

(i) 1 (ii) 256 (iii) 64 (iv) 1024 (v) 2401

37. Expand the following base power 5^{-5}

(i) $\frac{1}{243}$ (ii) $\frac{1}{15625}$ (iii) $\frac{1}{32768}$ (iv) $\frac{1}{3125}$ (v) $\frac{1}{625}$

38. Expand the following base power $(-4)^4$

(i) -64 (ii) 256 (iii) 1 (iv) -1024 (v) 1296

39. Expand the following base power $(-2)^{-3}$

(i) $\left(\frac{-1}{8}\right)$ (ii) $\left(\frac{-1}{125}\right)$ (iii) $\frac{1}{4}$ (iv) $\frac{1}{16}$ (v) 1

40. Simplify $(-3)^2 \times 3^2$

$$(-2)^{-2} \times (-4)^{-2}$$

(i) 72 (ii) 74^2 (iii) 72^3

(iv) 70^2 (v) 72^2

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

(i) 90^3 (ii) 90 (iii) 92^2

(iv) 90^2 (v) 87^2

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

(i) $\left(\frac{20}{3}\right)^2$ (ii) $\left(\frac{22}{3}\right)^2$ (iii) $\frac{20}{3}$

(iv) 6^2 (v) $\left(\frac{20}{3}\right)^3$

43. Simplify $\frac{5^2 \times 4^3}{3^3 \times 4^{-3}}$

(i) $\frac{2^{12} \times 5^2}{6^3}$ (ii) $\frac{2^{13} \times 5^2}{3^3}$ (iii) $\frac{2^{12} \times 5^2}{1}$

(iv) $\frac{2^{11} \times 5^2}{3^3}$ (v) $\frac{2^{12} \times 5^2}{3^3}$

44. Simplify $(-3)^{-3} \times (-4)^3 \times 4^{-3}$

$$(-4)^3 \times 4^{-3} \times 5^{-2}$$

$$(i) \frac{-1 \times 5^2}{3^3} \quad (ii) \frac{-2 \times 5^2}{3^3} \quad (iii) \frac{-1 \times 5^2}{5^3}$$

$$(iv) \frac{(-1)^2 \times 5^2}{3^3} \quad (v) \frac{-1 \times 5^2}{1}$$

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

$$(i) \frac{-1 \times 1}{2^5 \times 5} \quad (ii) \frac{-1 \times 0}{2^5 \times 5} \quad (iii) \frac{-1 \times 1}{2^5 \times 7}$$

$$(iv) \frac{-1 \times 1}{2^3 \times 5} \quad (v) \frac{(-1)^2 \times 1}{2^5 \times 5}$$

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

$$(i) \frac{3^4 \times 5^2}{2^{12} \times 5^4} \quad (ii) \frac{3^5 \times 5^3}{2^{12} \times 5^4} \quad (iii) \frac{3^4 \times 5^3}{5^{12} \times 5^4}$$

$$(iv) \frac{3^4 \times 5^3}{2^{12} \times 5^4} \quad (v) \frac{3^4 \times 5^3}{2^{12} \times 2^4}$$

47. Find the value of
$$\left(\frac{5}{3}\right)^{(-64)}$$

(i) -1025 (ii) -1024 (iii) -1022 (iv) -1027 (v) -1023

48. Find the value of
$$\left(\frac{5}{2}\right)^{\left(\frac{5}{2}\right)}$$



(i) $\frac{3125}{243}$ (ii) $\frac{3125}{241}$ (iii) $\frac{347}{27}$ (iv) $\frac{625}{49}$ (v) $\frac{3127}{243}$

49. Find the value of 2^{-4}

(i) $\frac{1}{16}$ (ii) $\frac{3}{16}$ (iii) $\frac{1}{18}$ (iv) $\frac{1}{14}$ (v) $(\frac{-1}{16})$

Assignment Key

- 1) (i)
- 2) (ii)
- 3) (iii)
- 4) (iii)
- 5) (iv)
- 6) (ii)
- 7) (i)
- 8) (i)
- 9) (i)
- 10) (ii)
- 11) (iii)
- 12) (v)
- 13) (i)
- 14) (v)
- 15) (iii)
- 16) (v)
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- 18) (v)
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- 38) (ii)
- 39) (i)
- 40) (v)
- 41) (iv)
- 42) (i)
- 43) (v)
- 44) (i)
- 45) (i)
- 46) (iv)
- 47) (ii)
- 48) (i)
- 49) (i)