

EduSahara™ Learning Center Assignment

Grade : Class VIII, ICSE

Chapter : Exponents

Name : Simplification of Base Power Expressions

Licensed To : Teachers and Students for non-commercial use

1. Simplify the expression $3^{\left(\frac{-7}{6}\right)} \times 3^{\left(\frac{-7}{6}\right)}$

(i) $3^{\left(\frac{-7}{3}\right)}$ (ii) 3^{-3} (iii) $3^{\left(\frac{-11}{5}\right)}$

(iv) $5^{\left(\frac{-7}{3}\right)}$ (v) 1

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

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

(iv) $(-1)^9$ (v) $(-4)^9$

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

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

(iv) $4^{\left(\frac{-6}{5}\right)}$ (v) $9^{\left(\frac{-6}{5}\right)}$

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

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

(iv) $\left(\frac{-7}{2}\right)^{(-7/3)}$ (v) $\left(\frac{-9}{2}\right)^{(-7/3)}$

5. Simplify the expression $(-9)^{-7} \times (-9)^{-2}$

(i) $(-9)^{-8}$ (ii) $(-7)^{-9}$ (iii) $(-9)^{-9}$

(iv) $(-11)^{-9}$ (v) $(-9)^{-10}$

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

(i) $7^{\left(\frac{29}{4}\right)}$ (ii) $4^{\left(\frac{43}{6}\right)}$ (iii) $7^{\left(\frac{57}{8}\right)}$

(iv) $7^{\left(\frac{43}{6}\right)}$ (v) $10^{\left(\frac{43}{6}\right)}$

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

(i) $2^{\left(\frac{568}{105}\right)}$ (ii) $\left(\frac{8}{5}\right)^{(578/107)}$ (iii) $\left(\frac{8}{5}\right)^{(558/103)}$

$$(568/105) \quad (568/105)$$

(iv) $\left(\frac{6}{5}\right)$ (v) $\left(\frac{8}{5}\right)$

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

(i) $25^{\left(\frac{-5}{4}\right)}$ (ii) 25^{-5} (iii) $28^{\left(\frac{-5}{2}\right)}$

(iv) $22^{\left(\frac{-5}{2}\right)}$ (v) $25^{\left(\frac{-5}{2}\right)}$

9. Simplify the expression $\left(\frac{-9}{7}\right)^{-5} \times \left(\frac{-2}{7}\right)^{-5} \times \left(\frac{-7}{4}\right)^{-5}$

(i) $\left(\frac{-11}{14}\right)^{-5}$ (ii) $\left(\frac{-9}{14}\right)^{-4}$ (iii) $\left(\frac{-9}{14}\right)^{-6}$

(iv) $\left(\frac{-9}{14}\right)^{-5}$ (v) $\left(\frac{-1}{2}\right)^{-5}$

10. Simplify the expression $\left(\frac{7}{3}\right)^{\left(\frac{7}{4}\right)} \times \left(\frac{8}{5}\right)^{\left(\frac{7}{4}\right)} \times \left(\frac{7}{6}\right)^{\left(\frac{7}{4}\right)}$

(i) $\left(\frac{196}{45}\right)^{\left(\frac{7}{2}\right)}$ (ii) $\left(\frac{22}{5}\right)^{\left(\frac{7}{4}\right)}$ (iii) $\left(\frac{194}{45}\right)^{\left(\frac{7}{4}\right)}$

(iv) $\left(\frac{196}{45}\right)^{\left(\frac{7}{4}\right)}$ (v) $\left(\frac{196}{45}\right)^{\left(\frac{7}{6}\right)}$

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

(i) $\left(\frac{5}{2}\right)^{(-5/6)}$ (ii) $\left(\frac{3}{2}\right)^{(-5/8)}$ (iii) $\left(\frac{5}{2}\right)^{(-1/2)}$

(iv) $\left(\frac{7}{2}\right)^{(-5/8)}$ (v) $\left(\frac{5}{2}\right)^{(-5/8)}$

12. Simplify the expression $(-6)^{\left(\frac{-3}{8}\right)} \times \left(\frac{-3}{7}\right)^{(-3/8)}$

(i) $\left(\frac{16}{7}\right)^{(-3/8)}$ (ii) $\left(\frac{20}{7}\right)^{(-3/8)}$ (iii) $\left(\frac{18}{7}\right)^{(-3/8)}$

(iv) $\left(\frac{18}{7}\right)^{(-3/10)}$ (v) $\left(\frac{18}{7}\right)^{(-1/2)}$

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

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

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

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

(i) 5^4 (ii) 3 (iii) 3^5

(iv) 3^4 (v) 3^3

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

(i) 9^2 (ii) 3^2 (iii) 6

(iv) 6^2 (v) 6^3

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

(i) 50^{-1} (ii) 50^{-2} (iii) 50^{-3}

(iv) 53^{-2} (v) 47^{-2}

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

(i) 5^3 (ii) 5^2 (iii) 5^4

(iv) 2^3 (v) 8^3

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

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

(iv) $\frac{-1 \times 2^4 \times 5^2}{3^3}$ (v) $\frac{-1 \times 2^4 \times 5^2}{6^3}$

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

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

(iv) $\frac{-1 \times 3 \times 5^2}{(-1)^6}$ (v) $\frac{-1 \times 3 \times 5^3}{2^6}$

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

(i) $\frac{-1 \times 2^8}{3^4 \times 5^5}$ (ii) $\frac{-1 \times 2^9}{3^4 \times 8^5}$ (iii) $\frac{-1 \times 2^9}{1 \times 5^5}$

(iv) $\frac{-1 \times 2^9}{}$ (v) $\frac{(-1)^2 \times 2^9}{}$

$$3^4 \times 5^5 \quad 3^4 \times 5^5$$

21. $(4^4 \times 6^8)^2 =$

(i) $4^4 \times 6^{16}$ (ii) $4^{16} \times 6^8$ (iii) $4^4 \times 6^8$

(iv) $4^8 \times 6^{16}$ (v) $4^8 \times 6^8$

22.
$$\frac{(5^{-2})^{-6} \times (8^{-6})^{-5} \times (10^{-4})^{-4}}{(5^{-5})^{-5} \times (8^2)^4 \times (10^{-4})^2} =$$

(i) $5^{-13} \times 8^{23} \times 10^{24}$ (ii) $5^{-13} \times 8^{22} \times 10^{24}$

(iii) $5^{-12} \times 8^{22} \times 10^{24}$ (iv) $5^{-13} \times 8^{22} \times 10^{25}$

Assignment Key

- 1) (i)
- 2) (v)
- 3) (ii)
- 4) (v)
- 5) (iii)
- 6) (iv)
- 7) (v)
- 8) (v)
- 9) (iv)
- 10) (iv)
- 11) (v)
- 12) (iii)
- 13) (iii)
- 14) (iv)
- 15) (iv)
- 16) (ii)
- 17) (i)
- 18) (iv)
- 19) (ii)
- 20) (iv)
- 21) (iv)
- 22) (ii)