

EduSahara™ Learning Center Assignment

Grade : Class VIII, SSC

Chapter : Exponents and Powers

Name : Simplification of Base Power Expressions

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

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

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

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

(i) $-1 \times 2 \times 3^5$ (ii) $-1 \times -1 \times 3^5$ (iii) $-1 \times 1 \times 3^5$

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

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

(i) $\frac{-1 \times 1}{\quad}$ (ii) $\frac{-1 \times 0}{\quad}$ (iii) $\frac{-1 \times 1}{\quad}$

$$2^{13} \times 3 \quad 2^{13} \times 3 \quad (-1)^{13} \times 3$$

$$(iv) \frac{-1 \times 1}{2^{13} \times 6} \quad (v) \frac{(-1)^2 \times 1}{2^{13} \times 3}$$

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

$$(i) \frac{5^2}{2^4} \quad (ii) \frac{5^2}{2^7} \quad (iii) \frac{5^3}{2^7}$$

$$(iv) \frac{5^2}{4^7} \quad (v) \frac{5}{2^7}$$

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

$$(i) \left(\frac{375}{5000}\right)^3 \quad (ii) \frac{375}{5000} \quad (iii) \left(\frac{373}{5000}\right)^2$$

$$(iv) \left(\frac{377}{5000}\right)^2 \quad (v) \left(\frac{375}{5000}\right)^2$$

6. Simplify the expression $\left(\frac{-7}{2}\right)_7 \times \left(\frac{-7}{2}\right)_7 \times \left(\frac{-7}{2}\right)_7$

$$(i) \ 9^{\left(\frac{-21}{2}\right)} \quad (ii) \ 7^{-11} \quad (iii) \ 7^{\left(\frac{-41}{4}\right)}$$

$$(iv) \ 5^{\left(\frac{-21}{2}\right)} \quad (v) \ 7^{\left(\frac{-21}{2}\right)}$$

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

$$(i) \ (-4)^{\left(\frac{-9}{2}\right)} \quad (ii) \ (-6)^{\left(\frac{-17}{4}\right)} \quad (iii) \ (-6)^{\left(\frac{-9}{2}\right)}$$

$$(iv) \ (-8)^{\left(\frac{-9}{2}\right)} \quad (v) \ (-6)^{-5}$$

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

$$(i) \ (-8)^{\left(\frac{173}{44}\right)} \quad (ii) \ (-8)^{\left(\frac{161}{40}\right)} \quad (iii) \ (-6)^{\left(\frac{167}{42}\right)}$$

$$(iv) \ (-10)^{\left(\frac{167}{42}\right)} \quad (v) \ (-8)^{\left(\frac{167}{42}\right)}$$

9. Simplify the expression $(-2)^{-3} \times \left(\frac{-3}{5}\right) \times \left(\frac{-6}{7}\right)$

$$(-2) \quad (-2)$$

$$(i) \quad (-2) \left(\frac{-156}{35} \right) \quad (ii) \quad (-2) \left(\frac{-164}{37} \right) \quad (iii) \quad (-2) \left(\frac{-22}{5} \right)$$

$$(iv) \quad (-4) \left(\frac{-156}{35} \right) \quad (v) \quad (-2) \left(\frac{-148}{33} \right)$$

10. Simplify $\left(\frac{v^g}{v^h} \right)^{(g+h)} \left(\frac{v^h}{v^i} \right)^{(h+i)} \left(\frac{v^i}{v^g} \right)^{(i+g)}$

(i) v (ii) -1 (iii) $v^{(g+h+i)}$ (iv) 0 (v) 1

11. Simplify $\left(t^m \right)^{(n-o)} \left(t^n \right)^{(o-m)} \left(t^o \right)^{(m-n)}$

(i) -1 (ii) 0 (iii) 1 (iv) $t^{(m+n+o)}$ (v) t

12. Simplify $\left(w^{(n+o)} \right)^{(n-o)} \left(w^{(o+p)} \right)^{(o-p)} \left(w^{(p+n)} \right)^{(p-n)}$

(i) -1 (ii) 1 (iii) 0 (iv) $w^{(n+o+p)}$ (v) w

13. Simplify $\left(\frac{t^j}{t^k} \right)^l \left(\frac{t^k}{t^l} \right)^j \left(\frac{t^l}{t^j} \right)^k$

(i) -1 (ii) t (iii) $t^{(j+k+l)}$ (iv) 0 (v) 1

14. Simplify $\left(\frac{2^f \cdot 9^{(f-5)} \cdot 16^{(f-3)}}{4^{(f-5)} \cdot 3^{(f-3)} \cdot 4^{(f-3)}} \right)$

$$(i) \quad 2^{-f+10} \cdot 3^{-f+1} \cdot 4^{-f+3} \quad (ii) \quad 2^{-f+10} \cdot 3^{f-7} \cdot 4^{f-3}$$

$$(iii) \quad 2^{f+5} \cdot 3^{-f+1} \cdot 4^{-f+3} \quad (iv) \quad 2^5 \cdot 3^{-2} \cdot 4^0$$

$$15. \frac{(7^{-6})^{-4} \times (10^3)^6 \times (11^2)^3}{(7^5)^{-4} \times (10^{-5})^4 \times (11^{-2})^2} =$$

$$(i) \quad 7^{44} \times 10^{38} \times 11^{10} \quad (ii) \quad 7^{44} \times 10^{39} \times 11^{10}$$

$$(iii) \quad 7^{44} \times 10^{38} \times 11^{11} \quad (iv) \quad 7^{45} \times 10^{38} \times 11^{10}$$

$$16. \left[(6^3)^3 \times (6^3)^3 \right] \div 6^{18}$$

$$(i) \quad 4 \quad (ii) \quad 2 \quad (iii) \quad 0 \quad (iv) \quad 1 \quad (v) \quad 6$$

$$17. \left[\left(\frac{6}{9}\right)^{-7} \times \left(\frac{3}{8}\right)^{-7} \right] \div \left[\left(\frac{9}{6}\right)^7 \times \left(\frac{8}{3}\right)^7 \right] =$$

$$(i) \quad \frac{6}{9} \quad (ii) \quad \frac{3}{8} \quad (iii) \quad 0 \quad (iv) \quad (-1) \quad (v) \quad 1$$

$$18. \text{Simplify } 4^{-1} + 7^0 + 3^1 + 5^{-1}$$

$$(i) \quad \frac{87}{20} \quad (ii) \quad \frac{97}{22} \quad (iii) \quad \frac{91}{20} \quad (iv) \quad \frac{89}{20} \quad (v) \quad \frac{9}{2}$$

Assignment Key

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